Apple2000

THE NATIONAL APPLE USERS GROUP

JUNE - JULY 1992

Apple2000

The All Apple User Group
Committed to All Apple
Users including Macintosh

The Apple2000 magazine
is published by
Apple2000, P.O.Box 3
Liverpool , L21 8PY

Contact Points

Administration: Irene Flaxman

Apple II Hotline: Dave Ward
Mon-Fri 1900-2100

Macintosh Hotline: John Arnold
Mon-Fri 1900-2100

TABBS: Ewen Wannop - SYSOP
AppleLink: BASUG.1

Reviews: Elizabeth Littlewood

Local Groups: John Lee

TimeOut & ProSel: Ken Dawson

AppleWorks: John Richey

Apple2000 supports users of all
the Apple computers. The **ITT 2020,
I, II, II+, //e, //c, //c+, IIgs, IIgs+,
///, Lisa, XL, Mac 128, 512,
MacPlus, Classic, Classic II, SE,
SE/30, Mac LC, II, IIsi, IIcx, IIci,
IIx, IIfx, Quadra, Portable and
PowerBooks**
Contributions and articles for the
magazine are always welcome. We
can handle any disk size or format.
Send to PO Box 3, Liverpool, L21 8PY

PLEASE NOTE
Any articles of specific interest to
Apple II, Apple IIgs and Apple /// users
are printed in the front half of the
magazine, while those relating to the
Macintosh and Lisa are at the back.
Look for the page icons:

- 🖥 Apple II, //e and //c 🖥
- 🖥 Apple /// 🖥
- 🖥 Apple IIgs 🖥
- 🖥 Macintosh, Lisa 🖥
- 🖥 Macintosh II 🖥

Apple2000
June 1992

CONTENTS

🍎

USER GROUP
CONNECTION

MEMBER
MUG NEWS SERVICE

There are a number of ways to contact Apple2000

If you wish to order goods or services from
Apple2000 or just leave us a message, call
Irene on ▓▓▓-▓▓▓-▓▓▓ (Ansafone during
the day). Alternatively you can Fax. your
order to ▓▓▓-▓▓▓▓▓▓ or write to the PO
Box. If you use comms you can leave orders
on TABBS addressed to the SYSOP or
contact us on AppleLink (BASUG.1).

If you are experiencing problems with
Apple hardware or software Dave Ward and
John Arnold run the Hotlines and will try
and help you solve it.

We are very interested in the activities of
local user groups, and if you have any
information which you would like
publicised John Lee would like to hear
from you.

We reserve the right to publish, without
prejudice, any advice or comments given
to members as a result of letters received,
in the journals of Apple2000.

A little praise for a few of our authors
wouldn't go amiss. Send all comments,
and contributions, via the PO box,
especially suggestions about what you
would like to see in your magazine.

Chairman's Corner
Apple2000 1980-1992

❏ The committee have now had a chance to evaluate both the questionnaires that you have returned and the financial position of the group. As a result we have been able to come to some decisions about the services we can offer the membership for the next few months. Before I outline what these are, I would first like to share the results of the questionnaire with you. Disappointingly only 28% of the membership bothered to return a completed questionnaire. Many of the questionnaires were accompanied by useful comments and suggestions.

The results are as follows and are shown in percentages:

Question	Yes	No	Don't know
Would you renew membership if we:			
Raised subscriptions by £20	37	56	3
by £10	4		
If there were no magazine	13	85	2
If there were no shop	88	11	1
If there were no Hotline	79	19	2
Would you give direct help	10	79	11
Support independent disk library	64	31	5
Support independent TABBS	45	49	6
Do you own a modem	51	48	1
Get enough help from your dealer	34	54	12
Get enough help from Apple	12	69	19
Do you own an Apple II	49		
Do you own a IIgs	33		
Do you own a Mac	47		

It is clear from these results that more than half of the members who replied own an Apple II, although many of these also own a Macintosh. The majority would not support an increase in membership fees, would not renew if we did not publish the magazine, but would not mind if we close the shop and the Hotlines. They would support an independent disk library and would probably pay for access to an independent TABBS Bulletin Board. They do not really get enough support from their Apple dealer, and they certainly do not get enough support from Apple UK.

This boils down to the magazine as being almost the sole reason that the majority joined Apple2000. BASUG started out, and Apple2000 has always tried to continue to be, a User Group. The magazine we saw as only a part of the many services that we could offer to our members. The results from the questionnaire put quite a different perspective on things and turn us primarily into a publisher. This is quite a different operation than the one we have been conducting. Many members own an Apple II of one sort or another, but it is now difficult for us to support the Apple II with editorial material. A glance at this issue shows that we have very little home grown material, and have had to rely on the windfall of the 'Apple History' series to fill the pages.

❏ The financial position of any business is a complex thing to untangle and find exactly where it stands at any given moment. The committee have done their best to forecast where we would actually stand if all debts were recouped and all creditors were paid. We have projected this to the point where all expenses related to this June issue of Apple2000 have been taken care of. The majority of subscriptions do not fall due until the period between November this year and January next year, and so we would have no substantial further income, apart from shop or library sales, till then. We are left now with sufficient funds to be able to produce one further publication before any new subscriptions come in. We therefore plan to publish something in September, though we cannot tell at this stage if it will be a full magazine. In the meantime, we have taken some steps to reduce expenditure and ease the financial burden to Apple2000.

There was some criticism that the shop prices were too high, but we have never been able to purchase in sufficient quantities to be able to offer huge discounts. This obviously has led people to shop elsewhere. We saw the shop as being a service for those who could not easily get the same products elsewhere rather than a bargain basement. We have never stocked hardware or commercial software as we have not been in the position to be able to finance stock to any level suitable for such an exercise. Also, we did not wish to take the bread and butter away from the dealers.

As Sysop of TABBS I have made the TABBS Bulletin Board into an open system where anyone can register for library access at a registration fee of £10 per year. TABBS now runs as a private venture and will not draw on Apple2000 funds. Current members will still get access until their memberships run out. They will then need to pay the registration fee directly to TABBS if they wish to continue to have library access. TABBS will continue to specialise in the Apple II. It now has the complete Apple2000 disk library available for downloading with the largest Apple II library of any UK Bulletin Board.

There will shortly be a new Bulletin Board which will specialise in support for the Macintosh, see page 71 and watch TABBS for further details.

In addition to these cost cutting exercises the committee are streamlining things wherever they can to reduce expenditure. We have opened up membership applications once again, but can only offer a reduced service obviously for the foreseeable future. Please contact Irene on 051-928-4142 for further details.

❏ In the last three months, the strongest voices that we have heard have been from the Apple II members of the group. These are the ones who have nowhere else to turn to for help, and who would lose most if we were unable to continue as a User Group. In these Apple2000 editorials I have long asked for more help both in writing material and as nominations for the committee and the various tasks that need to be done. The crisis that Apple2000 faces has brought some of these people to the fore, and it has perhaps highlighted the particular needs of the Apple II community. Three new Apple II super local user groups are starting up. By meeting only a few times a year, these new groups will be able to have direct contact with each other, give each other direct help and simply keep the idea of a User Group going. They all are coordinating their efforts via the TABBS Bulletin Board. You will find further details on how to contact these groups on the next two pages. I would ask that at least one committee member from every other local User Group, should contact TABBS regularly, and thus keep the network going for as long as possible. Messaging on TABBS is free, all you need is a modem.

❏ The Macintosh community has been far less vocal in their response. They have of course other avenues to go down. If we are only to be a magazine, then there are many others for them to choose from. The scale of our operation does not allow us to do the kind of things that a magazine like Mac User can do. In any case, as has been shown over the last year, we cannot draw the level of advertising we would need if the magazine was going to be all that we did as a User Group.

❏ The way forward for Apple2000 still looks bleak I'm afraid. I shall be contacting those who have offered direct help to see if they will be willing to be involved in running Apple2000 for the coming year. I would expect that the scale of operation of Apple2000 can only become smaller than it is now. We will need to produce smaller publications in the future, and this with all the other cost cutting measures, will probably result in membership levels dropping even further.

❏ Since the days of the 256 byte Altair and the first 4K Apple II, we have seen many changes. The Newton PDA is due early next year, the IIci looks like being dropped very soon and a colour Classic should be launched by the end of this year. Who knows what the rest of the nineties will bring us...

Ewen Wannop

Apple2000 Crisis

❏ With the crisis facing the future existence of Apple2000 we have naturally had considerable correspondence both directly and returned with the questionnaire. The following letters are just some of those we have received.

The first letter is from an ex-Chairman of Apple2000. Quentin has kept a keen interest in the group since he left the committee. He has never stopped using or having an interest in Apple computers. Although his comments on using modems and the TABBS Bulletin Board may not meet with everyones' approval, he sums up what one member told me on the phone 'Perhaps now is the time to get a modem!'.

The next letters are all showing the way that things will probably have to go. The idea of local User Groups are now the only way that direct support can be given to the Apple II community.

The final letter is extremely interesting, and show that we are not alone in having severe problems. A recent press release may have escaped many of you, but if the Licensed Victuallers Association can close down, what future is there for Apple2000!   🍎

Leicester
June 13, 1992

Dear Editor,

For what it's worth I thought that I would go into print with my own feelings regarding the future of Apple 2000, having been associated with it for a number of years and probably feeling as strongly as anyone about the club.

The present committee know as well (if not better) than I that the finances of the club have always been difficult, particularly as BASUG was set up to trade as a non-profit making organisation. That of course does not mean it should be loss-making. Every committee that I have been aware of has worked long hours which have been fraught with stress and decisions which far out-weigh any rewards. In the early 80's most people that I got to know seemed to be more interested in poking around with disk operating systems and curious addresses within the machine, than bothering too much with programs, other than as a means to a particular end. There were some fascinating people around (still somewhere no doubt) who had got to grips with disk operating systems at a very early stage. People such as David Bolton and machine code wizards like Ian Trackman. There was Norah Arnold who used to 'amuse' herself by programming complex and quite beautiful drawings on a dot-matrix printer - all in machine code! Ewen Wannop, who can write machine code and sample real ale simultaneously, and who can also design and build electronic circuits in his sleep. The list goes on, but it serves to illustrate, not only the wealth of knowledge which was (and is) available, but also should illustrate that the expertise was only therein the club because these people wanted to share those skills to expand their own knowledge at this level.

My perception now is that this intensive desire for knowledge has largely evaporated and that most users, including myself, purely use their various Apples to run applications.

Perhaps it was the 'closed architecture' of the original Mac which shut this door to exploration, although they were so expensive then that very few members actually had one and so the Apple][continued for quite a time as a prime tool.

The IIGS was, in many ways, the ideal vehicle if Apple computing was to develop as a means of intellectual progression, combined an ability to probably do everything (some would argue more) that a Mac can do.

However that is not to be, and the Apple][is dead, at least in the UK, and I believe that BASUG is the poorer for that decision.

Many people like me have a][+ sitting quietly in a corner, a computer representing an investment of several thousand pounds but now effectively worthless. My Mac LC has now been superseded and the SE's in the office are of little real worth without lots more memory. Software seems to expand to fill the potential (and beyond) of our computers with the attendant problems of compatibility etc. all of which makes the original pleasure of Apple computing for me at any rate just something in the distant past.

Self help groups like Apple2000 only work if they are exactly that, if you have bought an Apple][for £10 then you have a real bargain which can give you a great deal of satisfaction at almost any level.....BUT...I believe that it is only fair that you invest your own time in exploration and not rely entirely on others simply passing on hard earned knowledge.

For the system to work, those people within the group who may have the answers you seek in turn need feedback from you, and often precise information, to make their contribution worthwhile, otherwise they become merely talking databases on aspects of computing which they passed through perhaps ten years ago.

When I compare the contents of the magazine of 1982 and 1992 it seems to me that the present offering is more a collation of press releases and 'cuttings' from US services like Compuserve, of interest, but not of the same interest. Articles used to almost follow a theme depending on which piece of equipment had come into the user's financial range, dot-matrix printers, modems etc. Strings of letters and discussions ensued from these articles, carried through into workshops and local meetings. I see little or no evidence of this any more.

I believe that the time has finally come to cease publication of the magazine and , if Apple2000 is to continue at all, that it should be in the form of an electronic service. Modems are now very cheap and easy to use, the facilities available through TABBS allow for different Apple users to message each other for help on specifics without reverting to the Sysop or committee members. There should be more people who can help simply because they are going through exactly the same problems, but have perhaps managed to get a step or two ahead of you, and that I think is more valuable simply because their experience is more recent.

With the ability for TABBS to cope with simultaneous callers there is the facility for on-line conferences which of course can give immediate answers and often open another avenue purely because of the immediacy of the transmission.

I would like to see Apple2000 continue in some form or another, but one which we can afford, which gives us some feed back and offers an avenue for information. I don't see the relevance of the magazine any more, nor do I see the need for supplying goods which can probably be purchased cheaper elsewhere. It used to be that that the

sales of goods provided some of the funding for the magazine and exhibitions etc. and I am not convinced that it is relevant any more as the face of 'personal computing' seems to have changed so much.

The expansion of TABBS with a fairly cheap membership fee to allow the installation of a second line and additional storage, plus the costs associated with receiving new PD software from Compuserve etc. seems a sensible and effective means of continuing Apple2000 in the original spirit of it's inception and perhaps returning to more interactive enjoyment for us all.

Quentin Reidford (Chairman BASUG 1985-86)

E-Mail
TABBS

Dear Ewen,
Local Contact Groups

With the likely demise of Apple2000 it is possible that Apple][users will lose contact with each other. I hope to be able to irritate enough people, both with messages and loud shouting, to force them to contact me so that I can store their name and address on a database. The database will allow me to collate groups of people within reach of each other. These groups can then help each other with problems as well as giving people a good excuse to meet in pubs for drinks.

I think the Apple][community can only survive and recover by nurturing the formation of local groups.

I envisage a group to cover a radius of between 50 and 100 miles. Meetings, if there are any, would take place once or twice a year but the main form of contact would be by telephone. The group I am in in the North consists of people from Selby in the South to Ashington in the North, from Tynemouth in the East and to Harrogate in the West. We meet occasionally and phone a bit more often. We help each other out with problems, be it setting up a Hard Disc or installing System 6 or using software.

Other uses of groups are to enable a prospective software purchaser to ask a user what their honest opinions of the software is, help others solve adventure programs (more on this later).

Groups should be free to join but any costs incurred by others on your behalf should be refunded, ie postage stamps, and everyone should by the rounds in the pub. If one person wishes to act as coordinator then send them SAE's so they can reply: Remember they are spending their time.

Coordinators, if you have a modem then we can use TABBS or APPLECRACKERS to pass info around groups. If this idea takes off then maybe Ewen or Bryn could make specialist conferences available so that we always put messages in the correct area. An ideal use would be to pass names of Apple Users who are moving to a different area so that we do not loose contact.

I am prepared to help all new users no matter how 'basic' the problem but to do this I either need to be phoned or preferably written to. If possible send a disc and I will put answers and maybe examples on it. But enclose stamps. I am a Student and therefore penniless. I have a full collection of Windfall and Apple User as well as the first few volumes of Apple2000 (BASUG as it was) magazines. If anyone wants photocopies of articles or subjects then until August they cost an SAE, after August they cost 10p a page as after August I loose free access to a photocopier and will need to use the Library. I will trust you to pay by return of post when you get the article. Copyright

laws reduce the amount photocopied so you will not be able to have all of June 1988 for example.

Richard Dix wants to set up groups. Who else is interested? I cannot contact you if you will not contact me. Could Apple2000's final act be a mailshot to every Apple][user on your lists urging them to get in contact with me so I can try put them in contact with others?

The depressing side of all this is that if people do not respond now they may never be able to get in touch with others and all APPLE2000 has done and tried to do could be in vain.

Act now. Write today and post tomorrow. If you know a few other users then Ok I do not need all your names and addresses but make sure one person has contacted me.

Remember: NO MAN IS AN ISLAND.

While I remember, Andreas Wennborg from Sweden, you are welcome, as are all overseas users, to contact me and keep in touch, .

Come on people, REPLY! NO ONE IS GOING TO DO IT FOR YOU !!!.

Hopefully this will appear on TABBS, APPLECRACKERS and if in time be published by APPLE2000.

My name is:
ALAN ARMSTRONG

30 BEACHCROFT AVENUE,
NORTH SHIELDS,
TYNE AND WEAR,
NE30 3ST
Tel 091 257 9078 or from abroad +44 91 2579078.

Alan Armstrong

E-Mail
TABBS

Hello Ewen,
NEW GROUP APPLE][SOUTH

It is proposed to set up a new user group for users of Apple][and Apple][compatable machines. The group will cover all Southern England and South Wales. If you are interested in joining, please contact BRYN JONES on TABBS, or on 081-998-6800.

The inaugural meeting of 'APPLE][SOUTH' (user group) will be held at Winnersh (East of Reading) where Road & Rail access is very good.

If you are interested in joining the group (devoted to all Apple]['s and compatables), please ring me on 071-248-6549 (at work) or, failing that, 081-998-6800 (at home). I will then give you more information, add your details to the data base, and subsequently send you a pack with maps, timetables, etc.

Meetings will probably be about three times a year, so it shouldn't interfere with other activities too much. If you're a family man, why not take them to Henley for an afternoon by the river; it's very easy to drive to the meeting from there.

Bryn Jones

22 School Road
Headham,
King's Lynn,
Norfolk
PE11 7DQ

Dear Apple GS User,
As many of you know Apple2000 are having problems

at the moment and it seems that the end may soon be near. I feel that this will be a great loss as I have made several friends through the group.

However I feel that those of use lucky enough to own GS's should form our own specialist group, to cover the 16 bit software as well as the 87 bit stuff, but to keep the group GS only, at least to begin with, to prevent the problem of the person who has bought a //e for £10 and wanting something for nothing (as has recently happened to poor old Apple2000).

To this end I am organising meetings at the new location of ClockTower.

For those who are interested in further details of the group, if and when formed, please send an SAE to the above address.

Yours II GS Foreveringly,
Richard Dix   é

Camberley
Surrey

Dear Norah,

I am very sorry to hear of the Apple2000 difficulties and wish the committee strength in the painful decisions ahead. I am not about to help rescue the Club and as intimated in a recent letter I cannot afford to spend self-employed time writing articles for the magazine, much less administrative support. Whilst this may be supportive it is not a helpful letter unless you are very broad-minded. In some ways I suppose I do represent the new breed of Apple User and that therefore you now get a member's viewpoint to assist the committee's decisions.

As a recent member I realise my views do not carry any weight though I have followed the fortunes of BASUG from Washington DC for many years. Bernie Urban, for one, would be very sad to see you go down - but Bernie was sent down and even his wife thinks he's a fool supporting WAπ now. I am afraid to say the only way to organise a computer club is that of a business; that a core of supporters is at least remunerated, handsomely if necessary. I speak as a volunteer in a US Government Institute and as a VP of WAπ - the term of office must be infinite and new 'blood' must turn up to replace tired people. I was only too glad to give up my responsibilities and incidentally one group folded after my committee decamped.

The reason I did not support the AGM was that I attended the MacUser Group FileMaker UG that very same day and they had a very impressive array of speakers; John Lewis has to make sure MUG works and is profitable. That is the way realistic things are. Though I could 'command' an audience of 500 in WAπ that level of attendance is impossible in Britain for various reasons - distance, travel time, road congestion or Apple II concentration. Also, WAπ membership has stood at around 6,000 for many years - after we reached 6,502. We just exchanged new members for lapsed subs. No matter how the subsequent recruiting drives found new members WAπ figures have remained static. Now, with a mean and ugly office system the facilities decline inexorably. WAπ has been on the brink of collapse for two years and it's the biggest club after Boston, and the world's biggest Mac Group. If they experience difficulties God Help Apple2000.

The Apple IIs will never any more support a large volunteer national club. I learned my Apple //e in the garden and spent an inordinate amount of money making it 'fly'. When the Mac appeared I never programmed anything ever again - I don't know how where to start

'tweaking' the operating system. The Mac is not a toy and no matter how much the Apple // was or is a business or laboratory machine that era has gone. As I see the issues: Apple II owners must use their machines in the way Steve Wozniak started his and learn it the hard way, at the 'coal face'. No User Group can now lead a hobbiest through the Control-Apple sequence. Anyway, from what I read, the IIgs is now more of a Mac than the 128K Mac was. But by this same token, I will never use an Apple // again; it was great at the time; the Ford Prefect is great in a field but I need a modern car on the motorways.
Adrien G Youell   é

The Editorial team is:

Apple II	Ewen Wannop
Macintosh	Norah Arnold, Irene Flaxman
Reviews	Elizabeth Littlewood

Many thanks to all those who work behind the scenes and who receive no personal credit. These people are the stalwarts of Apple2000.

Additional thanks go to Val Evans for designing our front cover, and to Walter Lewis of Old Roan Press (051-227-4818) for our printing service.

Apple2000 are Founder Members and Wholehearted Supporters of the Apple User Group Council

Letter Box

Dear Ewen,

Ref: Fax Modems prompted by letter from Trevor Nicholas (Apple 2000 1992 Feb) But for the fact that it is not approved for connection by British Telecom we WOULD have installed our Interfax 24/96 modem last October and WOULD be happily using it today.

USAGE:

3-4 faxes per day sending 1 personalised letter from Word with 5-6 pages of standing copy from Word or PageMaker

1-2 per month sending 3 pages from Foxbase or Wingz

200-300 per two months same letter to 200-300 addressees (faxes?)

At present we would be using it for outgoing only (shortage of lines and as we are about to move not worth installing)

ADVANTAGES:

No longer have to go over to fax machine in corner (would be used for incoming only now).

Whilst an accounts dept. is on the telephone requesting a copy invoice (same old excuses for slow payment of bills) I could call up the invoice on screen and fax it immediately on hanging up rather than riffling through piles of paper.

When a potential client requests information I could not only send the standard poop sheets that day but also schedule an automatic reminder fax to be sent 7, 14, 28, whatever days later if the client had not by that time booked.

Runs in background, 200 faxes would go out, or if they didn't (recipient out of paper, off-line, disconnected, busy) I could see a report.

With our scanner we could send non-computer generated faxes just like a real fax except, of course the storage capacity of the Mac beats even the largest of commercial dedicated faxes - great for price lists and other frequently used images

We have (sorry, would have if it were permissible to connect it) a 9600 baud modem as part of the deal. Useful for contacting TABBS and CIS.

DISADVANTAGES:

Can't add a new fax number to the directory whilst scheduling (that would usually be where I would discover that it was missing

Can't delete a fax after sending if it has other docs in the same "envelope"

Not enough thought given to sequences involving keyboard entry/mouse clicks. If the user can't choose to use one method, at least considerate programmers should ensure that entry does not require alternating devices between each input. Click the bits that have to be clicked then key those that have to be keyed not click, key,click, key,click!

[Not Interfax's fault(?)]: Imaging of fax is not WYSIWYG when mixing colours and weights/underlinings, etc. of fonts, haven't quite worked out the pattern of error here. Suspect it has something to do with dots per inch interference between screen and fax.

[Not Interfax's fault]: Wouldn't it be simple to have a default Chooser destination for each document? As it is, if I had connected Interfax, I would have to pick Faxmaker from

All in all, we are happy with Interfax (or would be but for BT). When we move I would intend using it for incoming. If this happens I will send an update.

Philip Ormond - THEATRE DESPATCH

Llandrindod Wells
Powys

Dear Apple2000,
A Tale of OLDuvai

Back in August 1991, I took the plunge into System 7, believing that it would give me a lot of benefits and some problems - and I was right!

One of the problems came from an unexpected quarter - Olduvai Corporation of Florida. They brought out a System-7-compatible version of their famous Read-It!OCR software and called it Read-It! OCR PRO 3.0A. I took delivery late September 1991 and the program worked well on its own test sheet, in fact, it worked brilliantly, giving results in identifying the typeface provided beyond previous versions.

The only snag was that I was unable to install that part of the program on Install Disk No.3, as the computer reported a fault. A second set of disks from Olduvai in December produced the same result. I then decided to install directly from the second set of original disks, rather than from the backups. This time I managed to install from all three disks, but the program would not boot!

So what had happened between receiving the first set of Read-It! PRO disks and the second?

The answer was quite unexpected. With the first disks containing the new software came a lot of promotional material, written and produced very professionally, giving one the impression that it was all superb, not to say essential, for all Mac users worldwide.

So I decided to buy the Olduvai MultiClip 2.1 and this was delivered in October. I installed the program, using the System 7 version, which was bundled with the earlier one for System 6. On browsing around the program, I managed to hang the computer a few times, but this is not unusual with the Mac IIcx, I simply assumed I had hit the wrong keys or there was a power brownout or one of those Mac demons was prowling around.

At the end of December, I sent a fax to Bob MacDonald of Olduvai, incorporating a full System Read-out from INIT manager, as he requested. Before receiving any response from Bob, I was again browsing around MultiClip and got two more bombs. On deleting MultiClip from the system disk, I discovered the Read-It! OCR PRO now booted up and the program worked fine.

I faxed this information to Bob MacDonald on 6th January and asked his advice on how I could get back use of MultiClip without harming Read-It! OCR PRO. On 14th

January, he suggested that I set Suitcase II alphabetically in the DA list. But this did not change anything - apart from the position of Suitcase in the DA list of course. This result was faxed to Bob on 20th January and on 30th January, I phoned for news and was advised that Bob's colleague, Mike (a programmer) would investigate.

And I assume he still is.

If anyone can give Mike a clue, please let me know!

Frank Pycroft

Addiversion Board
Croydon

Dear Editor,

Something has been bothering me for quite some time.

The symbol m=milli=1/1000; the symbol M=Mega=1 million.

The symbol for a Byte is 'B'

A phrase such as '1.4mb HD disks' as on page 2 is just nonsense.

Please tell Ewen and all your other contributors.

Quintin Gardner

❑ I stand corrected. I am not a mathematician and so these things are really foreign to me. I will try to make sure I use the correct terminology from now on. I am therefore now puzzled as to what a 'K' or a 'k' means. A Kilobyte is of course 1024 Bytes, surely 'K' or 'k' in mathematical terms would mean a thousand?

Ewen Wannop

---

mathematical challenge
Thwaite

Tel: (0484-71471) (evenings)

Dear Norah,

We recently purchased two Iomega Bernoulli Box removable cartridge drives in the hope that we could use them as backup devices for the non-profit making Challenge's IBM PS/2 Model 80. Unfortunately the cost of a suitable SCSI interface makes this uneconomic and we shall have to sell them. I wonder if you would help us by bringing the matter to the attention of your users. The drives are new, unused and in their original boxes. They are Iomega's own rather than the badged model. They are Apple versions with all documentation and unused Apple software, they need a standard Mac cable. (They could also be used for a PC fitted with a SCSI interface.) The units have two slots for 10Mb cartridges.

We are asking only £150 incl of P&P and insurance. (We are not of course registered for VAT.) We could also supply four cartridges. I do hope one of your users will be interested.

Ron Allpress

PS We are looking for an AGFA Focus II sheetfeeder; can anyone help?

Compuserve
E-Mail

Ewen,

I have a problem with which you may be able to help. I've got hold of a Laser printer PB9815 which is really intended for Big Blue customers, but it has a LaserJet II emulation and if I could get hold of a Mac driver suitable for the LJII I could use it. HP UK are their usual uncooperative selves saying that the LJII was phased out over a year ago, and so far I've been unable to find a source for the driver, or to find an equivalent to download. I have messages on Compuserve forums HPPER and PACKARD BELL asking for help but to no avail so far.

John Stanier

❑ Can anyone help please?

If you can please E-Mail John on Compuserve: 100010,2611 or you can always leave a message for him on TABBS. Address to 'John Stanier' in the Mailbox area.

Ewen Wannop

PO Box 23105
Eugene
OR 97402
USA

Dear Irene,

My wife and I are to be in England in the first week of October of this year.

I am interested in writing to Apple users (Apple II) before we come over, so that we can meet in October. I have over eight thousand programs going back to 1979, 2 IIgs's and an undying interest in Apple II's - I am on GEnie as JSTAL and would welcome letters from anyone interested in the Apple II.

I buy all hardware and software wholesale and could bring some things with me, including Apple hats, sweatshirts etc.

Jack Stalcup

TABBS
E-MAIL

Hi Ewen,

Looks like the Apple][community could do with some help, so here goes. First, how about a help page in Apple 2000, I'll do it so long as it is made clear no calls please, only through the Apple 2000 PO Box or TABBS. Basic economics comes into this, the calls can be most time consuming and generate no income to Bidmuthin.

Two answers for the current problems in Apple 2000. For Mr. G. Philipson, AppleWorks will create a database from a Quickfile file, all you have to do is convert from Pascal to ProDOS using your favourite utility, dare I suggest Chameleon, or the //c utilities disk.

To Mr. Rob Cann, //e Omnis to IBM AT: Omnis can create a DIF file, it defaults to calling this #5:DIFOUT I believe. ie a file called DIFOUT on the second floppy drive. However since PASCAL does not really care where it goes, try #6:DIFOUT (ie the printer card in slot 1). Or create the DIF file on the hard disk and use T)ransfer in the Pascal Filer to copy the file to the serial card if its in another slot. Obviously at the other end you need some comms software to capture the data, but then DBIII will read a DIF file.

Mark Whelan (Bidmuthin Technologies)

Chippenham
Wiltshire

Dear Sir,

Is there anyone out there who can tell me if there is any way to produce templates for forms (samples attached) on my (don't laugh) "Apple //c personal computer".

I am not at all conversant with computers but I would find it very handy if I could get either my present machine or if not possible on this one a "reasonably priced uncomplicated" machine to o the task. Is there a software package that the Apple //c could run to do this.

I can't find a way with the AppleWorks disk that came with the machine t do lines down or draw boxes which I need to do to create forms similar to those I have attached.

Perhaps someone at Apple2000 would be kind enough to let me know if the //c could do the task and if so give me an idea of the software price or alternatively advise me which machine I should buy with rough idea of the price.

P Greaney

❏ To produce templates of the type you have shown us, you will need a desktop publishing program. A word processor is not suitable as it cannot draw the lines and boxes as you have so far found out.

The only one suitable program for the //c is Publish It! and about the only dealer currently handling Apple II products in the UK is Clocktower. See their advertisement in this issue for further details.

The results you finally get will be limited by the resolution of the dot matrix printer. Publish It! is capable of driving a laser printer, but this is an expensive option, and not easy to interface to the //c. In fact it would be cheaper to buy a Macintosh and StyleWriter than to buy a laser for a //c! This would set you back some £800 or so!

Ewen Wannop

Mirfield
West Yorkshire

Dear Apple 2000,

I need help! having acquired from a former Apple user friend a numeric keypad, I am looking for a way to make them compatible if this is possible.

My Apple 11e has a "Keypad connector" on the main board with eleven pins, the Keypad is a TKC K620-0002 with a Keyboard Company interface PCB K820-0012B-09, ASSY K627-0002-04, PC-P-86V-0.

Can anyone offer advice please?

Gerry Foreman

St Peter Port
Guernsey
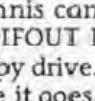
Dear Apple2000,

Can you give me some information please?

I have had an Apple //e since 1985 with 2 Apple 5.25" disk drives and everything still works marvelously. I have no desire to upgrade to a Mac LC but realise that one of these days I shall have to. The literature which I have seen about the LC with its Apple //e card says that Platinum 5.25 drives are the only 5.25" drives supported.

Can you tell me what a Platinum Drive is?|My drives simply have the Apple logo on them and the words Disk / /. Are they Platinum or will they be no use when the time comes to upgrade? If they are obsolete how can I acquire the appropriate drives for use when the time comes. I have never seen an advertisement for Platinum disk drives new or second hand.

I use Format 80 for word processing and AppleWorks 3.0 for everything else. Will I be able to use these programs when I upgrade?

I also have a number of questions:

1. Is there a way to transfer data from Quickfile to AppleWorks 3.0?

2. My Ramworks III came with two disks, one for enhancing AppleWorks 1, the other for enhancing AppleWorks 2.0. There is nothing for enhancing AppleWorks 3.0 beyond a suggestion to contact the manufacturers in California. I would like to be able to segment a large database over more than one disk. Have you any suggestions?

3. In 1988 I bought a 1987 version of Apple II Utilities disk but found I was unable to load the System Utilities other than Fastcopy which worked perfectly. The shop checked my machine and consulted Apple but were unable to overcome the problem. I was persuaded that a

1984 Utilities disk would serve and they gave me a copy which does indeed work well. The 1987 version has a facility to verify a disk which is not included in the 1984 version ad there have been occasions when I would like to have used this. I have never had an explanation for this problem. Can you give me one?

4. Can you recommend a statistical program. I would like to be able to work out standard deviations, confidence limits and chi squared, t tests etc. This does not seem to be within the capacity of the AppleWorks 3.0 spreadsheet. Catalogues you sent do not suggest that there is much on the market. I would be interested to learn what you recommend for this.

5. Finally an observation, not a problem. In using the Copy a file facility of the 1984 Utilities disk you get a list of files which can be marked for copying. The prompt says press U as the marker. This did not work for me, but Control U did the job. I have not seen this in books.
R E Irvine

❑ The reference to Platinum drive simply refers to the fact that the older disk drives have the wrong connector to attach to the disk port of the //e LC card. All drives these days are platinum coloured and the 5.25 drive suitable for the LC is obtainable from any Apple dealer supplying the //e card.

Any program which runs on a standard //e will work with the //e card. Format 80 will work fine. However, since you will be running a Mac, why not consider a Mac word processor? These are WYSIWYG and more powerful than anything on the //e. A copy of ClarisWorks would fill your needs for some time to come!

1. See the solution to this above in the letter from Mark Whelan

2. I am not sure what you want to do here. The Ramworks III should be seen as a standard Ram drive and AppleWorks 3.0 will use this as expanded desktop space. If you mean that you wish to segment a file over several disks because it may be larger than a single floppy, then this is another problem altogether. A hard disk drive is the best and simplest solution to this problem. Backup programs for hard drives will then always segment a large file as it saves it. Any hard drive you buy can be used later on the Mac.

3. I presume you must have had a corrupt disk. Unless that is you got the //c version by mistake. We have the latest System Disk 3.2 in our library. Order as S015 from the Apple II library. This includes various utilities in addition to FastCopy.

4. I am not an expert on statistics and so can only suggest you contact Clocktower to see if they can help. Perhaps someone else knows of such a program.
Editor

Bourn
Cambridge

Dear Ewen,
What about an article from someone who understands Fonts on the GS? When I was using an Epson dot-matrix printer I could use GS Font Editor with predictable results. But driving into the LaserWriter is another matter. What is the significance of the internal font-size, why do base-lines not remain base-lines when mixing fonts on a line (Wilmette & New Century Schoolbook to get hold of 'smart' quotes etc.). I like the aspect ratio/line spacing of PI in preference to the GS fonts. But do what I like to (eg) New

Century Schoolbook.18 (by scaling, resetting the font size, leading, base-line, etc.) I can not get identical results to Wilmette.18 on the Laser (close, but not sufficiently close to allow AWGS and PI to produce identical page layouts). Also, is it possible to transfer a // font to the Mac (as a bit image), and a Mac screen-font back?

AppleWorks 3 foibles when used with Epson and Juki printers.
In my computing infancy on IBM mainframes there was a saying, or rather question, that was asked when the software did not perform as expected. It ran, "Is it a bug, or a feature?"

AppleWorks 3 also appears to have its share of 'features'. Two that caused me some head scratching are as follows:

Printing labels from the Database to an Epson printer.
Although the printer was correctly installed and selected, the labels, though recognisable, were randomly scattered on the page and interspersed with character strings that looked like incomplete Epson control sequences.

I left the 'proper' Epson installation in place, but added a 'custom printer' setting the 10 and 12 cpi sequences to 'Esc P' and 'Esc M' (the bare minimum necessary to control the Epson). Using this custom printer (named 'Label Printer') labels could then be successfully printed, all other printing being done to the 'proper' Epson.

Printing to a Juki 6100 printer
Initial results were remarkable! Investigation revealed that the Juki control sequences for 15cpi and 6-lines-per-inch involve the use of Ctrl-I. Unfortunately, Ctrl-I is also a very significant character if you are driving the printer from an Apple parallel or (older) serial card, or a Grappler. It is necessary to get the printer card to 'turn a blind eye' as the characters are passed to the printer. To achieve this, I replaced the existing 15cpi sequence of:

Esc Ctrl-_ Ctrl-I with:
Ctrl-I Ctrl-Z Esc Ctrl-_ Ctrl-I Ctrl-Z Ctrl-I

and similarly the 6 lpi (the real trouble maker) with:

Ctrl-I Ctrl-Z Esc Ctrl-^ Ctrl-I Ctrl-Z Ctrl-I

all then performed as expected, except I had to continue using my own code in order to get the Juki to read AW2 WP files and correctly print fully justified text with proper micro-justification.

Publish It! 4, Multiple fonts and hard disks
Despite not having access to the second half of the character set, we mostly use PI4 on a IIgs with a LaserWriter IINT in preference to AWGS or GraphicWriter III. However, one publication we do uses Times (Deerfield), another Helvetica (Desplaines) and another New Century Schoolbook (Wilmette). Because of the 24 font limitation this meant having four copies of PI mounted on the hard disk, one 'standard', and the other three rich in the various sizes of the required fonts. The situation got rather out of hand as extra public domain fonts were occasionally added or fonts modified. We wanted all the fonts in one folder (and not the system fonts folder, either). But PI had to be in the same folder as the fonts. The solution was to copy four copies of PI into one folder, renaming the following files as I did so:

DTP.SYSTEM renamed as (eg) Times
DTP.MAIN as DTP.Mtim
DTP.PARM as DTP.Ptim

then, using Zap from 'Bag of Tricks 2' I searched each renamed SYSTEM and MAIN program, changing any references to DTP.MAIN and DTP.PARM to the new names. There was a danger that in writing tight code (to fit onto a 128k //e) the file-name strings might have been used as a bit pattern somewhere else in the code, but that does not appear to be the case, and four independent versions of PI have been working in this form from one folder for some months now.

Dave Sewart

❑ Thanks for the illuminating words. The IIgs font structure owes some of its patterns to the original Mac screen fonts. However there are many new fields in the GS header. It is possible to convert Mac fonts across to the IIgs, but I do not think the reverse process is possible. The fonts have to be converted, they cannot be used directly in their Mac format.

I am not an expert on fonts at all, so will need to ask if anyone else can give us a more detailed explanation of the way the IIgs fonts work.

Ewen Wannop

Barry
South Glamorgan

Dear Ewen,
Where in the World..or..A saga of bashing your head with a modem..aka... Non-Comms WITH TEARS!
(Sorry about the plagiarism Ewen! No disrespect intended)

Since my last letter to you, I have spent some the time searching through back issues (more like ancient) of the various Electronic/Computing mags which I've got, kicking myself for having given away so many over the years. I obviously have the same problem as you, albeit on a smaller scale! What I'd give, just to spend a couple of weeks (years!) browsing through the Committee Member's garages!

Sorry, I'm rambling again! Anyway, the outcome of all this activity, was that I stumbled across an article ('Computer Answers', June 1984) about the plethora of these newfangled modems just waiting for Approval. To quote the article; 'Since BABT have taken over responsibility from BT, the progress of modems through the Approval process has gone from a sloth's to a snail's pace.'; and in a list of UK suppliers was Dacom Systems who had BT Approvals on two modems. Also in the same issue was a MGA (then known as Michael Gurr Associates) advert for the DSLV21 Buzzbox. I now had the 'bit between my teeth' and began to look for more recent address, i.e. less than 4-years old, which I found and of course they'd moved. So, taking a leap into the postal void I wrote to them.

Meanwhile, knowing that I'd need comms software, I bought (£10 boxed new) VICOM (Level 2) from Greenwald Electronics, who deal in surplus electrical/electronic gear and over the years have been *very* handy for bits and pieces. I would recommend anyone to subscribe (£2 per 6 issues) to their Newsletters. I also wrote off to Vicom.

In due course came their replies, which are reproduced below:-

(a) Dacom's reply from Andrew Morrow, 'Support Manager'. (my inverted commas)

Dear Sir,
Re DSLV21AA modem
We do not recognise the model number of the above referenced modem. Since 1984 Dacom Systems has moved premises twice and in 1989 we were incorporated into the Psion group. Consequently we do not have any manuals or even circuit diagrams for "old" Dacom products. (their inverted commas)

However, early Dacom modems responded to the basic Hayes commands and also had their own proprietary command summary. This can be accessed by sending "*SET" command to the modem. A menu should then appear on screen and the mode of operation selected. The "*ATO" command will then put the modem back into Hayes mode. I trust this information is of some help.

(b) Vicom's reply from June Arthur, Office Administrator.

Dear Mr. Smith,
We received your letter of 13th February.
Unfortunately, it is nearly five years since this product was discontinued and the technical staff who worked on it are no longer available.

I am enclosing some literature on the current products produced by AM Technology, Connect, MultiTerm and the Pro family forming the VICOM family and Classicom. I regret we could not be of more help to you.

Referring to (b): Vicom must obviously terminate (as in kill off) all their employees and anybody associated with a product when it is discontinued, thereby ensuring optimum sales of their new products. After all, 'nearly five years' must seem like eons to a Salesperson; Sorry Office Administrator; (sic). Whole galaxies have been created and imploded in *nearly five years*! I pity all the smug mega-machine owners in 'nearly six months' (let alone 5-years) time; when they try to find out about their Pro-Multi-Conterm-etc-version.xxx talk-back box of tricks!

Referring to (a): Dacom's excuse isn't much better! How many people do you know leaving everything when they move house, no matter how many times.

For what its worth here are their addresses:

VICOM	Psion Dacom PLC
AM Computer Technology	Dacom House
34/36 Poole Hill	Presley Way
Bournemouth	Crownhill
BH2 5PT	Milton Keynes
	MK8 0EF

As a passing thought, I wonder how the Gulf war would have feared if the RAF had approached SEPECAT for Jaguar operating manuals and were told the same thing. After all, it is nearly THIRTY years ago that the aircraft was developed not to mention that other dinosaur the Buccaneer!

Luckily, the manual that came with the Vicom software I bought has shed some light, as the Dacom 'Buzzbox' is referred to. It is categorised as a Non-intelligent Manual Dial Standard Modem (MODEM TYPE '0'). Included in this category are the following modems: Miracle WS2000, Telemod 1 & 2, Pace Nightingale and six others. Now all I need is to get a serial card and I'm in business, I hope. Here's Greenweld's address:

Greenweld
27 Park Road
Southampton
SO9 0HE

Now that's off my chest, I would like to mention at least one Company is still 'old-fashioned' enough to realise that there is such a thing as Customer Relations. It is Elite Software Ltd. Last year I bought their Wildcard Plus after seeing their advert in A2000. Recently I decided to buy their Password-69 program and also asked for further information on their Symbol-77, Appli-kit and Edit-]I[programs. I was pleasantly surprised to receive not just a flyer but the *actual* manuals for my perusal! Of course, whichever ones I decided not to purchase yet, I shall return the said manuals. The address and contact is:

Miss Teresa Strange
Elite Software Company Ltd
4 Hawthylands Drive
Hailsham
East Sussex
BN27 1HE

Ewen, about enhancing my //e, yes, I do have a Rosco Resolution 128k card but it is only loaded with 64K. I have another two 64K DRAMs and wrote to Holdens (where I bought the card) asking them as to what chips go into the other spare sockets (18-pin DIL). I still haven't received an answer, even tough I included a sae. I assume that they are TTL. The s-called 'Reference manual' doesn't have a schematic diagram.
Robert Smith

❏ What a tale, and thanks for all those addresses.

I think that the Vicom manual is correct when they say the Buzzbox is a manual modem, and at least they tell you how to use it. Dacom obviously had not a clue. Once you have a serial card that Vicom recognises, and I would recommend an Apple Super Serial Card or look-alike, you should be away. Or at least you will be away and communicating at a basic level. Vicom runs under DOS 3.3. This is fine for general messaging, but if you catch the Bulletin Board bug and start to download you will find severe limitations. Nearly all the software for the Apple II on TABBS for instance requires ProDOS. True you can convert from DOS 3.3 to ProDOS with a utility like Chameleon, but Vicom has another twist up its sleeve.

Those long departed programmers made a rather odd assumption about downloading using Xmodem protocol. You do not know what kind of a file is going to arrive down the line, and so it is usual on Apple comms programs to save the data as a generic TEXT file. The file may actually be text, but is more likely to have 8 bit code data. Vicom programmers reasoned that as TEXT files under DOS 3.3 always have bit 7 of the ASCII data set, they should make sure that the file they saved did the same thing. Yes, you've guessed it, bang goes the integrity of the data! At least Vicom level 1 had this feature and I have no reason to think that Vicom level 2 is any different.

My own Data Highway now known as Antelope, saves incoming 8 bit data as a TEXT file, but preserves the full 8 bit data. With these files you can then Chameleon them across to ProDOS and do what you like with them. Vicom's files are clobbered before you start. Don't imagine you can use Copy II Plus either. It clobbers the 7th bit of TEXT files being transferred from DOS 3.3 to ProDOS. Chameleon (this is not meant to be a plug even though I did write it!) is the only program that can be told to preserve the full 8 bit data when you transfer between file systems. Both Antelope and Chameleon can be bought from Apple2000.

An enhanced //e, that is one with an R65C02 processor and the three enhanced ROM's fitted, requires an ex-

tended memory card in the small slot in front of Slot 3. It is this card that gives it the 128K memory. A standard 128K memory card in one of the other slots does not do the same thing. The standard Apple enhanced card came in two forms. One had a minimum of memory to allow you to use the 80 column screen. The other had sockets for an extra eight chips to make the full 64K additional memory. Most third party boards had the full 64K already installed.
Ewen Wannop

❏ Last issue, we published John Staner's letter about MacII power supplies — nobody seemed to have an answer. Well, John, help is at hand. One of our advertisers spotted your letter, and would welcome a call from you. You should contact C R C Europe Ltd, on 081-742-9901. They are confident that they have an answer for you.

❏ If you have an urgent problem you should ring the Hotline to get help. Letters and Fax submitted to Apple2000 will normally be dealt with as part of the editorial content of the next magazine. We shall endeavour to answer problems if at all possible before publication, but due to the large volume of letters received this may not be possible in all circumstances. Please submit all letters and articles to the magazine on disk wherever possible. The disks will be returned to you when the magazine is published. The publication deadline is the beginning of the month preceeding publication. If you have a modem, send us letters, articles, reviews and PD and ShareWare programs to the Sysop on TABBS

AppleXtras

Xtras.P8.No.15

```
Side One
   T SHRINKIT          SYS    39943
   T IIPLUS.UNSHRINK   SYS    12511
   T FASTUTIL.SHK      LIB    29725
   T DESKJET.SHK       LIB     8955
   T Format40.SHK      LIB     5043
Side Two
   T GRNDTRAK.SHK      LIB    95077
   T roladx.bxy        LIB    37504
```

Xtras.GS.No.15

```
Utilities
   2 GSHK.BXY          BIN   103296
   2 IR201.BXY         BIN   129024
   2 SuperCat          LIB    24052
Leisure
   3 FLTILE.BXY        BIN    14592
   3 The.Dragon        LIB    92351
   3 Tonight.Sky.SHK   LIB   143075
   3 Home.Accounting   LIB    43034
Music
   4 NoiseTracker1.0   LIB   192825
```

XTRAS.P8.No.15

SHRINKIT

The very latest ShrinkIt V3.4 for the //e and //c computer. Bug fixes have been made. You should use these new versions from now on.

IIPLUS.UNSHRINK

The latest UnShrinkit 2.1 for the II+ computer. This version of ShrinkIt only unshrinks files.

FASTUTIL.SHK

Sets up your ImageWriter II with many different printing options. Use it to address envelopes and print labels amongst other things.

DESKJET.SHK

A small utility and instructions on how to use your DeskJet 500 laser printer from AppleWorks 3.0.
Note: this will not work with the DeskWriter printer.

FORMAT40.SHK

This little Basic program allows you to patch ProDOS so it will write to all those extra tracks Apple forgot to give you on the 5.25 inch disk.
Note: Not all disk drives are able to read and write more than the normal 35 tracks. The instructions tell you how to find out how many tracks your drive can manage. Most drives will give you 36 tracks and some //c drives will go up to 39 tracks, but if you are lucky you will get as far as the full 40!

GRNDTRAK.SHK

Track the sky for spy satellites! If the moving light

you see is not included and displayed in this program then it could be a UFO!

ROLADX.BXY

An AppleWorks database file of useful sources and addresses of User Groups and magazines.

XTRAS.GS.No.15

GSHK.BXY

Version 1.0.6 of the definitive file compacting and archival software. This is now fully System 6.0 compatible and HFS friendly. This version should be used to unpack all future SHK files.

IR201.BXY

A System 6.0 Finder extension which allows you to install, de-install and run NDA's directly from the Desktop. Invaluable for checking out a Desk Accessory before you install it permanently in the System folder. This program requires System 6.0.

SUPERCAT

Catalog's an entire disk onto the 80 column screen or printer. Fully recursive in operation.

FLTILE.BXY

Fast action game needing quick thinking as you turn and lay the multi colour tiles down. Try and beat Karl's high score!

THE.DRAGON

The Shanghai tile game brought to the IIgs as a ShareWare program. Based on the original Activision version, this is an addictive game. I have spent many hours playing the Activision original, and this one is just as good!

TONIGHT.SKY.SHK

Although Tonight's Sky Version 3.0 is not a IIgs specific program, it is too large to include on the P8 Xtras disk. This is the //e and //c version of the program. We have included it on the IIgs Xtras disk as it is an excellent star map generator showing the night sky from any predefined spot or time.

HOME.ACCOUNTING

A comprehensive way for you to keep track of your home accounts and expenditure. A must to keep track of those pennies you are saving for your next computer!

NOISETRACKER1.0

NoiseTracker 1.0 from FTA in France is an impressive music system and song player. Edit and play multi track sound files and create your own instruments.

Library Update

S015 - ProDOS System Disk V3.2

This is the current 5.25 inch ProDOS 8 system disk for the //e and //c. It includes ProDOS 1.9 and Version 3.1 of the System Utilities program. This program includes file copy, disk management and other operating system utilities.
Order as usual from PO Box 3, Liverpool, L21 8PY

Help Lines

❏ Members having offered specialist help facilities are listed below:

Alan Armstrong (Apple II+, IIgs)
Ken Dawson (TimeOut, ProSel)
Dave Edmundson (A/UX)
Michael Foy (Amateur Radio)
Jim Harle (AppleWriter APL)
A.W. Harmer (Mac)
Leonard Horthy (4th Dimension)
John Richey (AppleWorks)

A2-Central

A2-Central magazine $34
A2-Central (disk) $90
Time-Out Central (disk) $48
Script-Central (disk) $48
Studio City (disk) $48
Hyperbole (disk) $48

❏ All prices are for one year's subscription and include worldwide airmail delivery. All usual credit cards accepted.
❏ Resource Central are also the distributors for all APDA Apple II development products. Please contact them for a current price list.

Order from:
Resource Central
P.O. Box 11250
Overland Park
Kansas 66207-1250
U.S.A.

GS+ magazine

❏ GS+ the magazine for software developers is published by EGO Systems. This magazine is published bi-monthly and is now the only magazine devoted to programming on the Apple IIgs now that 8/16-Central has ceased to be.

Contact:
EGO Systems
PO Box 15366
Chattanooga
TN 374150366

A+ magazine

❏ The A+ magazine is published every month and costs $82.97 for one year.
Contact:
inCider/A+
PO Box 50358
Boulder
CO 80321-0358

Genie™

❏ CompuServe is the biggest online system that interests Apple users. It has many areas within MAUG of specific interest to us. However, there is another online system in the States that has special areas for Apple users. GEnie is a branch of the General Electric company and the online service is now available for UK users. The GE Services network that is used from the UK is in fact the one also used by AppleLink.

Online charges to GEnie are charged in two price bands. Peak periods (Mon-Fri 8 am to 6 pm Eastern Standard Time) are charged at $20 and offpeak (all other times) at $8. The offpeak charge is therefore cheaper than CompuServe.

These however are the online charges only. You have to access GEnie in the first place. So far they have not installed a similar access to CompuServe so it will be necessary to have your own PSS or DialPlus account and call the NUA '334219601282'. This is a UK NUA so only the £1.65 an hour PSS charge will apply. The total charges for GEnie therefore work out at around £7.06 an hour offpeak.

Enter XJM11797,CENTRAL at the U#= prompt when you reach GEnie and follow instructions.
To obtain a DialPlus account contact:
British Telecom
Customer Service
Managed Network Services
St. Andrews House
Portland Street
Manchester
M60 1BT

AppleLink™

❏ Send us your AppleLink ID's to the Apple2000 box.

Apple2000   BASUG.1
Cumbrian Computers   CUMP.COMP
Herts User Group   NA.HERTSUG
Liverpool Group   LIVERPOOL.UG

Radio Hams

❏ We now have more call signs!

Trevor Baker   -   G4CLE
Mike Bass   -   G3OJE
Harold Bennet   -   G4LPV
Ian Bryden   -   G0PMZ
Jim Danby   -   GZOVM
(Packet Radio Mbox)   -   GB7FCI
Michael Foy   -   G7KOD
Andy Harrington   -   G1XLW
(Packet Radio Mbox)   -   GB7SUT
Rev John Lincoln   -   GM0JOL
Tony Gatrell   -   G4SVB
Arthur Owen   -   G2FUD
John Stanier   -   G3APU

|Compuserve®

☐ Please send us your ID's either to the Apple 2000 ID 76004,3333 or of course to the Sysop of TABBS (0225-743797).

Apple 2000	76004,3333
John Beattie	100012,360
Peter Bell	100010,404
David Collins	100016,3060
Ken Dawson	100016,2275
Michael Dawson	100015,2232
Gary Doades	100016,2353
Felim Doyle	100016,1151
Greg Elkin	100023,616
David Evans	100014,1161
Mateen Greenaway	100016,602
Alastair Greenstreet	100010,742
Dale James	100016,1152
Bryn Jones	71307,1457
Mark Hooper (DiscWorld)	100014,374
Jihad Jaafar	100016,526
Richard Kelly	100029,177
Peter Kemp	100016,1172
Andy Letchford	100016,1771
Elizabeth Littlewood	100016,401
John Maltby	100014,2216
Peter Marsh	100031,341
Mark O'Neill	100016,476
Philip Ormond (Theatre Dispatch)	100013,1162
Steve Perry	100013,365
Marion Piercey	100023,662
Jeremy Quinn	100016,560
John Richey	100016,1037
Russell Ridout	72007,211
Arthur Robinson	73457,3614
John Stanier	100010,2611
James Southward	73767,1336
Ahmet Turkistanli	100016,3365
Donald Walker	100015,256
Andreas Wennborg	100012,342
James Walker	100013,142
Ewen Wannop	76224,211
Brian Williams	100016,2735
Wai Mun Yoon	100023,3557

|Membership

Compuserve/Forum

World's largest online database with many specialist Apple forums. Large libraries of PD and ShareWare software, real time conferences, message areas and much more. Accessed ether directly on 071-490 8881, or through the BT DialPlus network. You do not need to have a DialPlus account to access Compuserve. It will cost you around £8-£12 an hour inclusive of all online charges, network access and local phone call.

To join contact:
Compuserve/Forum
Freepost (BS 6971)
15/16 Lower Park Row
PO Box 676
Bristol, BS99 1YN
0800-289 378 or 0272-255111

☐ If you are a Macintosh user then you should order a copy of Compuserve Information Manager when you join.

|Are your AppleWriter boots comfortable

Jim Harle gives us a WPL tidbit for that excellent word processor

Today I discovered something about AppleWriter and its Word Processing Language (WPL) that I hadn't found before.

This isn't an unusual phenomenon, because my appreciation of this delightful program has never ceased to grow since it first came into my possession. I always seem to be finding some new facet surfacing from its depths which simplifies my tasks and procedures, so I'm always on the look out.

Now I know Apple UK finds taking money for new equipment from Apple II enthusiasts totally repugnant, and that eventually we'll have to transfer our allegiance to a manufacturer having enough proper pride to promote its products, but while our machines continue to exhibit life, the joys and practical uses of this species doomed to extinction will continue to keep us riveted. In the hope that this little discovery will be of use to someone, I am happy to share it through the columns of our magazine.

As there are different versions of the software involved, I will just pass the idea without too much detail and leave it to the reader to work it out within his or her own particular environment. I worked under ProDOS 8 V1.4 with AppleWriter II USA V2.0 and Copy II Plus V8.3 in this instance.

For many years I have used my own boot disks for AppleWriter which require just PRODOS, BASIC.SYSTEM, AW.SYSTEM, AWD.SYS, STARTUP (extensively modified), SYS.PRT and SYS.TAB to function satisfactorily, leaving

plenty of room for any WPL application program files on the same disk. As you will already be aware, the AppleWriter boot process stops just before the end, waiting for a <return> to continue. At this point, you can substitute a disk with your own SYS.PRT and SYS.TAB files. What has escaped my conscious notice previously is that if there is a WPL program named STARTUP on that disk, AppleWriter will run it without further a-DO (Sorry!).

As my usual modus operandi is to have RAM disks talking to each another, disk substitution midway through a boot is a trifle inconvenient. Another factor which has masked the possibilities is that STARTUP already exists on the boot disk as an Applesoft Basic file used by the operating system. Presumably because this STARTUP is of the wrong file type, nothing visible happens when the freshly booted AppleWriter tries to run it. AppleWriter runs WPL programs, which are Text.

You can imagine how tedious it is to be continually swapping in and out of AppleWriter and having to type the same "control-P DO filename" each time, where filename stands for the name of my WPL Main Menu. I rejoice to say this is now a thing of the past.

Firstly, I located the word STARTUP in AWD.SYS on a 3.5" disk utilising the sector editor of Copy II Plus. (Needless to say, everything is done using a copy of the AppleWriter program, and NOT one of the precious originals!) Files are easily found on a disk by determining the location of the key block from the volume directory (passing through any subdirectories if necessary), and observing what blocks are allocated to the file by reading the key block itself. For anyone trying this for the first time, the low bytes of the block numbers allocated to the file appear in order in the first half of the key block, and the high bytes in the corresponding positions in the second half of that block. Should the reader wish to take the short cut of using a general disk scan to find STARTUP, the occurrences in AppleWriter may be distinguished from those related to the operating system by searching for the first eight of the ten hex bytes 44 4F 53 54 41 52 54 55 50 0D rather than just the name itself. A translation of these bytes into ASCII characters will provide no surprises.

I found the word STARTUP with high bits cleared in the 27th block of AWD.SYS and, with fiendish cunning, edited it to the name of my WPL Main Menu program. My program names are always as short as I can conveniently make them, and there may well be a limit of seven characters possible on this occasion. I made my filename up to seven characters by adding spaces ($20) before the <return> ($0D) which follows as the next byte. Incidentally, the name was in the 26th block of AWB.SYS and AWC.SYS, which files may well be versions of the program suited to earlier Apples than my IIe and IIgs models.

The felicity brought about by booting AppleWriter and seeing my Main Menu appear on the screen with nothing more than a touch on the <return> is quite indescribable! As I plunge into my application, I am suffused with warm satisfaction knowing that the boot has been left on the right foot. **Jim Harle**

SoundConvert

Adrian Campbell-Burt listens to an Apple IIgs HyperCard stack that Sounds Great!

When I had bought HyperCard and had calmed down to a sensible level I was slightly dismayed to find that I could not port sounds which I had created into the program; I have two sound digitizers, HyperStudio and Sonic Blaster. Subsequently joining ScriptCentral and finding the sounds filed in the Scriptors' Workshop a great help, but not personalised sounds, I was still frustrated.

Triad Venture Inc. in New York has come to the rescue with this stack which converts sound files between those created by you on the digitizers cards such as those mentioned already, but also including FutureSound and Binary files and finally the new Midi Synth format. In addition you can export sounds into the format of these digitizers from HyperCard. The package contains the disk with SoundConvert stack, the NDA digitizer file and the manual.

What you need.

System needs are 1.5 megabytes as a minimum, HyperCard IIGS, hard drive and a digitising board. SoundConvert is usable from HyperCard running from disc.

NDA as well!

Included on the disk is an NDA digitizer which allows you to create and save sounds from programs that support the desk accessories (little Apple menu). The formats for loading are slightly different from SoundConvert; apart from those mentioned Audio Animator has been added. The saving of sound files includes SoundSmith files, HyperCard, HyperStudio and (Raw) Binary format.

Ease of use.

Well ..... ease of use is synonymous with HyperCard, unless of course the programmer is a pervert! The screen is divided up into two working areas, the top being set aside for the titles. In the centre you have the display for the SoundConverted file which is shown with five fields with their values, these are the HyperCard Resource headers.

These headers are:- rFormat, rWaveSz, rRelPitch, rStereo and rRate. rFormat is, as described in the manual, set for HyperCard versions 1.0 and 1.1. rWaveSz presents the size in bytes of the file. rRelPitch tunes the sound to correct pitch. rStereo shows setting for left or right output. Finally rRate shows the playback rate in Hertz.

These fields can be tinkered with, except for rWaveSz, simply by clicking on the field to change the value. Clicking on the Save Resource button makes the changes permanent.

The bottom of the screen displays the buttons to manipulate the sound files. Use of pop-up menus is made with the Import and Export buttons; this enables you to choose the format in either case. The pop-up menu for Import sound provides the ability to digitize a sound from the stack itself once you have chosen the card type and the slot location. Choosing Digitize from the menu provides a dialogue box with a button that expands to allow you to choose the digitizer type i.e. HyperStudio, Super Sonic, Sonic Blaster, Audio Animator and Future Sound. If you choose from the last four you can then select the slot your card resides in from the revealed button; finally enter the name and off you go! Other buttons provide deleting, copying, renaming and the playing of sound files. Loading and Deleting Resource files also allows you to play a sound before doing so. Clicking on the box containing the Resource (file) name operates in the same way as clicking on the Load Res. button.

Conclusion

I think this addition to HyperCard is a must for the majority of users, allowing you to create your own sounds, grab them from other programs and move them around to different stacks. The stack is unprotected so you can delve into the scripts and see how things are done. Yet another feature is the ability to copy the Digitize Xcmd to other stacks, this includes HyperStudio stacks, to digitize sound from within those stacks as well! Having had the stack for a couple of weeks I've found no problems with it's operation, I certainly recommend the stack. This stack is one from a set of four stacks that Triad call their "HyperStuff Collection'. The others are ClipTunes which allows you to play 7 voice stereo music from stacks (Midi Synth format); ClipArt Plus includes graphics, NDA's and Xcmd's (both these are HyperStudio usable); GDL is a disk labeller stack using SHR picts, Icons and PrintShop graphics to create your own custom labels. Prices for these are $39.95. Triad Venture Inc. live at P.O. Box 12201, Hauppauge, New York 11788 U.S.A., the price last month was $28.00 but it will soon be going up to $49.00.

Adrian Campbell-Burt

Cyberspace

Or how to get into orbit with your modem through the BACC

As members of the BACC we are delighted to offer you and your members 30 days free access to the Cyberspace Gateway !!!

The Cyberspace Gateway is the largest infotainment system in Europe. Designed and developed by leading communication experts and modelled on highly successful worldwide BBS and entertainment systems. Via any PC with a modem link, connect to Cyberspace quickly and cheaply. Access state of the art games, education and business. Shareware members can upload or download programs and files to use off line on their own PC's. The file library has over 80,000 files available on its six gigabyte memory; additionally the system has 200 bulletin boards for use by members which will enable them to utilise their own special interest groups etc. The market for shareware and BBS has already been established in a minor way and we believe that the time is right for a sophisticated multi-user system for the rapidly growing market place. Just some on the on-line Gateway facilities:

1 The Biggest Shareware library in Europe
2 24 Hour Access to 6 Gigabyte Library
3 A Tele-conference System with over 64,000 Channels
4 The Latest Flashpool Multi-Player Games
5 200 BBS Systems
6 On-Line Shopping Facilities for Shoppers and Traders
7 A classified ads section
8 E Mail system
9 On line multi-user games
10 Virus checking package ensuring clean uploads & downloads

This and much more is available to members at a cost of only £10.00 per month or £99 per year (cheques, Access and Mastercard) However - as a launch special - call free to access the system for 30 days - the system modem telephone number is 071 580 6433.

For voice enquiries telephone 071 323 1552.

We are waiting to hear from you!

The Cyberspace Gateway

GALVIZ LIMITED REG NO. 2630290
TRADING AS CYBERSPACE GATEWAY
REGISTERED OFFICE: 1 MALCOM DRIVE, SURBITON, SURREY KT6 6QS
TELEPHONE: 071-3231552. FAX: 071-436 7644

DMA and the GS8 RAMcard

Cirtech UK explain how to convert your old GS8 card to DMA

PLUSRAM-GS8 DMA MODIFICATION

This modification can be made to all Cirtech PlusRAM-GS8 RAMcards and will transform the GS8 Into a DMA compatible RAMcard which will work with all DMA products (eg Apple High Speed SCSI card).

The modification limits the total memory capacity of the GS8 to 4 Megabytes Instead of 8 Megabytes (Apple now only support a maximum of 4 Megabytes In the GS). The modification will also allow the card to be used on the 'ew' IIG wlthout 'losing' the lower 1 Megabyte fitted to the card.

IMPORTANT

You need to make slightly different modifications depending on the amount of memory you have fitted to your card. The modified card will support either ONE, TWO or FOUR Megabytes of RAM. You cannot use 3 Megabytes of RAM.

The modifications require the ability to solder electronic components. DO NOT attempt to modify your GS8 Is you have any misgivings about soldering or handling electronic components.

If you return your card to Cirtech, we will carry out the modifications for you. We charge only a small handling fee (to cover carriage and costs) of £15.00 (plus VAT) within the UK or £20.00 outside the UK.

VERY IMPORTANT

Cirtech cannot accept any responsibility for any damage, howsoever caused, by incorrect modification of your card.

Additionally, no warranty or guarantee Is supplied with this modification.
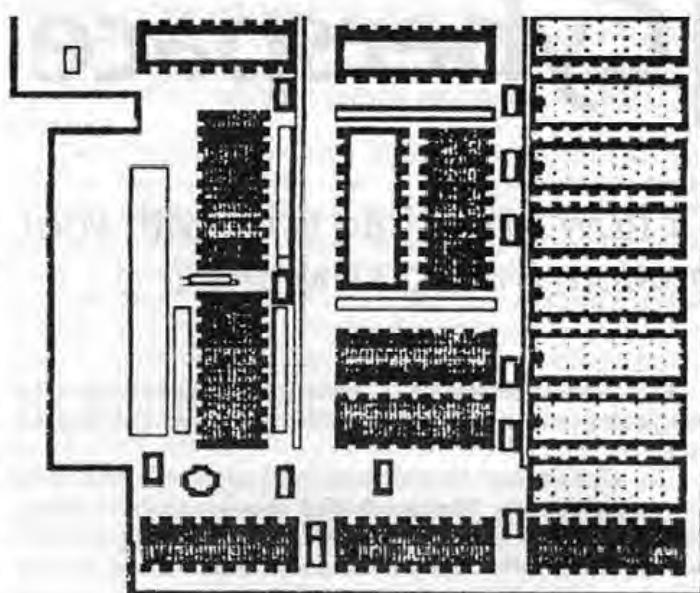
MODIFICATION INSTRUCTIONS

To carry out the modification you will need:
A small soldering Iron (with suitable solder)
About 1" of small gauge Insulated wire
Two 1K Ohm, 1/4 Watt resistors
A pair of miniature side cutters (small enough to cut an IC leg)

Procedure:
1. Cut pins 12, 13 and 14 on the 16L8 device.
2. Fit 1K resistors between pins 1 and 8, and between pins 2 and 8 on the 74F138 devices, as shown.
3. Fit a wire link between pins 5 and 8 on the 74F138 device, as shown.
4. Fit wire links, as follows, depending on the size of memory fitted:
1 Megabyte - no links required
2 Megabytes - Fit link between 16L8 pin 5 and 74F138 pin 1
4 Megabytes - Fit above 2 Megabyte link p/us another link between 16L8 pin 6 and 74F138 pin 2
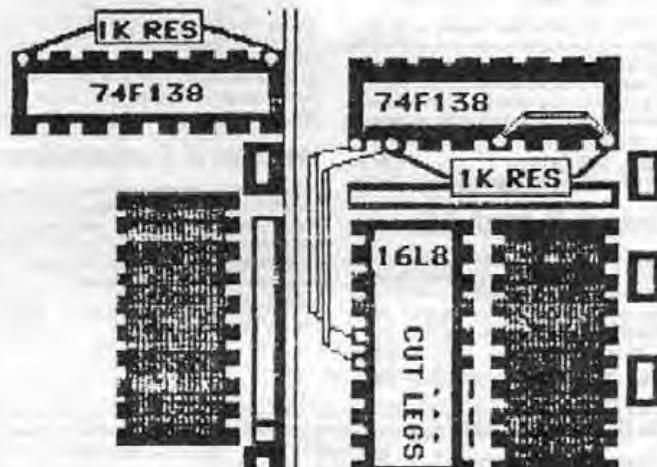
Pointless

Richard Dix reviews an important step in IIgs Desk Top Pulbishing

Introduction

Pointless is a font management utility for the GS that lets you use TrueType fonts (smooth, crisp and clean text at nearly any point size both on screen and in print) which means an end to "jaggies".

The Package

The program contains an INIT, which loads when you startup , and a Control Panel Device (CDev) to alter the settings. A selection of TrueType fonts are also included.

System requirements are a GS with 1.25megs of RAM, And system 5.0 or higher (including System 6.0, This is referred to several times in the manual).

How Pointless Works

All standard GS applications use the systems bit-mapped fonts which are made up of a series of dots and are available in specific sizes, e.g. 12, 14, 24 point. If you select any other size the GS tries to re-scale one of the existing fonts by stretching the dots, causing jagged edges. The same is true when you try to print because of the differences in resolution between the screen and your printer. 24 pin printers for example require fonts that are 3 times larger than those on screen, when printing a 10 point document on screen needs a 30 point font when printed , fine if you have one, but the results are not so pleasing if you do not.

See examples to the right. The top is 10 point scaled to 30 point and below Pointless TrueType font 30 point.

Pointless, using TrueType, creates font sizes as you require them, and can co-exist with your system fonts. In use you select them and size them as you normally would system fonts, however when generated they appear smooth, especially at large point sizes. While a font size is being created a round cursor appears on screen to show you that Pointless is working, this may take a second or two, but with an accelerator (I use a Transwarp) I found this no problem. This can be quickened further by using the control panel device , shown in figure 2 . This lets you create and save smooth bit-mapped fonts of different sizes for quick recall during use. The only penalty is disk space, no problem if you are using a hard drive and regularly print with the same sizes. This is also handy for use with ProDos 8 programs such as Publish It! and TimeOut SuperFonts which cannot support TrueType.

Ease of Use

Pointless is very easy to use, and works with most GS/OS software.TrueType fonts can easily be added to Pointless. Macintosh fonts can be transferred to it at present by the use of Apple File Exchange, but with System 6.0 out (the Pointless manual refers to this, HFST will allow direct reading of Mac fonts to the GS. Let us hope we do not have to wait much longer.   **Richard Dix**
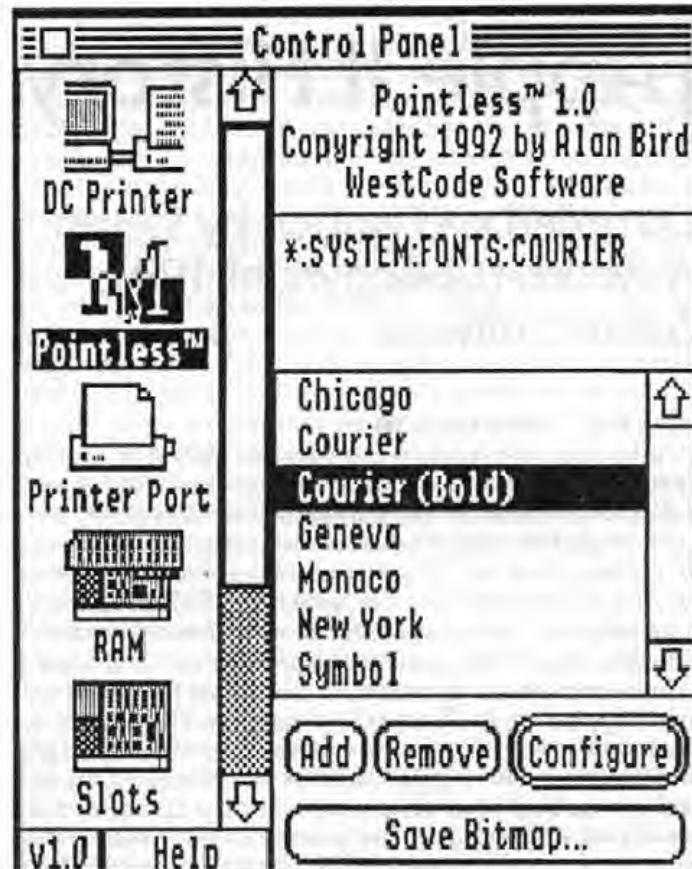
New York.48
WITHOUT
New York.48
WITH

Product :   Pointless
Publisher :   WestCode Inc.
Available from :
    ClockTower
    84a Weston Park
    Crouch End
    London, N8 9PP
    081-341 9023
    Price : £60 inc VAT and delivery

Value for money :   🍎🍎🍎🍎
Performance :   🍎🍎🍎🍎
Documentation :   🍎🍎🍎🍎

information

Apple II History

Compiled and written by Steven Weyhrich (C) Copyright 1991, Zonker Software

(PART 5 — THE DISK II)

Let's put some more trash into Mr. Fusion to fuel the next leg of our trip. How about one of those KIM-1 computers over there in the corner of the Computer Faire auditorium? We might have to break it up a bit to make it fit ... Okay, now we'll just make a small jump, to December of 1977. By this time the Apple II had been generally available for about six months. Most customers used their television as an inexpensive color monitor, and used a cassette recorder to store and retrieve their programs and data. Apple's major competitors were the TRS-80 and the Commodore PET. The products made by these two companies, together with Apple, could be considered as the second generation of microcomputers; they all came fully assembled and ready to use out of the box, with a keyboard and cassette interface. The TRS-80 and the PET even came with a monitors and cassette recorders. The strength of the Apple was expandability and graphics, while the strength of the others was cost (both the TRS-80 and the PET sold for around $600, half the price of the Apple II).

By late 1977, Apple had introduced some enhancements to the II, including their first version of a floating point BASIC (called "Applesoft") on cassette, and a printer interface card to plug into one of the slots on the motherboard. But the Apple II still needed something to make it more attractive to buyers, to stand out above the TRS-80 and the PET. One area that needed improvement was its program and data storage and retrieval system on cassette; it was a continued source of frustration for many users. The cassette system used on the TRS-80 was more sophisticated than that of the Apple II, allowing named files and easier storage of files and data on the same tape. On the Apple II it took VERY careful adjustment of the volume and tone controls on the cassette recorder to get programs or data to successfully load. The Apple cassette system also needed careful attention to the location on the tape where a program was stored, and was no more accurate than the number on the recorder's mechanical tape counter (if it had one). Apple president Mike Markkula was one Apple II user that was dissatisfied with cassette tape storage. He had a favorite checkbook program, but it took two minutes to read in the program from the tape, and another two minutes to read in the check files.[1] Consequently, at the executive board meeting held in December 1977 he made a list of company goals. At the top of the list was "floppy disk". Although Wozniak didn't know much about how floppy disks worked, he had once looked through a manual from Shugart (a Silicon Valley disk drive manufacturer):

"As an experiment Woz had [earlier] conceived a circuit that would do much of what the Shugart manual said was needed to control a disk drive. Woz didn't know how computers actually controlled drives, but his method had seemed to him particularly simple and clever. When

Markkula challenged him to put a disk drive on the Apple, he recalled that circuit and began considering its feasibility. He looked at the way other computer companies—including IBM—controlled drives. He also began to examine disk drives—particularly North Star's. After reading the North Star manual, Woz knew that his circuit would do what theirs did and more. He knew he really had a clever design."[2]

Other issues that Wozniak had to deal with involved a way to properly time the reading and writing of information to the disk. IBM used a complex hardware-based circuit to achieve this synchronization. Wozniak, after studying how IBM's drive worked, realized that if the data was written to the disk in a different fashion, all that circuitry was unneeded. Many floppy disks sold at that time were "hard sectored", meaning that they had a hole punched in the disk near the center ring. This hole was used by the disk drive hardware to identify what section of the disk was passing under the read/write head at any particular time. Wozniak's technique would allow the drive to do self-synchronization ("soft sectoring"), not have to deal with that little timing hole, and save on hardware. Wozniak asked Randy Wigginton for help in writing some software to control the disk drive.

During their week of Christmas vacation in 1977 they worked day and night creating a rudimentary disk operating system, working hard to get the drive ready to demonstrate at the Consumer Electronics Show in the first week of 1978. Their system was to allow entry of single letter commands to read files from fixed locations on the disk. However, even this simple system was not working when Wozniak and Wigginton left for the show. When they got to Las Vegas they helped to set up the booth, and then returned to working on the disk drive. They stayed up all night, and by six in the morning they had a functioning demonstration disk. Randy suggested making a copy of the disk, so they would have a backup if something went wrong. They copied the disk, track by track. When they were done, they found that they had copied the blank disk on top of their working demo! By 7:30 am they had recovered the lost information and went on to display the new disk drive at the show.[3],[4] Following the Consumer Electronics Show, Wozniak set out to complete the design of the Disk II. For two weeks, he worked late each night to make a satisfactory design. When he was finished, he found that if he moved a connector he could cut down on feedthroughs, making the board more reliable. To make that move, however, he had to start over in his design. This time it only took twenty hours. He then saw another feedthrough that could be eliminated, and again started over on his design. "The final design was generally recognized by computer engineers as brilliant and was by engineering aesthetics beautiful. Woz later said, 'It's something you can ONLY do if you're the engineer and the PC board layout person yourself. That was an artistic layout. The board has virtually no feedthroughs.'"[5]

THE DISK II: COST

The Disk II was finally available in July 1978 with the first full version of DOS, 3.1. It had an introductory price of $495 (including the controller card) if you ordered them before Apple had them in stock; otherwise, the price would be $595. Even at that price, however, it was the least expensive floppy disk drive ever sold by a computer company. Early production at Apple was handled by only two people, and they produced about thirty drives a day.[6],[7] Apple bought the drives to sell with Woz's disk controller from Shugart, right there in Silicon Valley.

To cut costs, however, they decided to go to Alps Electric Company of Japan and ask them to design a less expensive clone. According to Frank Rose, in his book "West Of Eden":

"The resulting product, the Disk II, was almost obscenely profitable: For about $140 in parts ($80 after the shift to Alps) [not counting labor costs], Apple could package a disk drive and a disk controller in a single box that sold at retail for upwards of $495. Better yet was the impact the Disk II had on computer sales, for it suddenly transformed the Apple II from a gadget only hard-core hobbyists would want to something all sorts of people could use. Few outsiders realized it, but in strategic terms, Woz's invention of the disk controller was as important to the company as his invention of the computer itself."<8>

NOTES

<1> Gregg Williams and Rob Moore, "The Apple Story, Part 2: More History And The Apple III", BYTE, Jan 1985, pp. 167-168.

<2> Paul Freiberger and Michael Swaine, "Fire In The Valley, Part Two (Book Excerpt)", A+ MAGAZINE, Jan 1985, p. 45.

<3> Williams and Moore, "Part II", p. 168.

<4> Freiberger and Swaine, (Part Two), p. 45.

<5> Freiberger and Swaine, (Part Two), p. 46.

<6> ——, "A.P.P.L.E. Co-op Celebrates A Decade of Service", CALL-A.P.P.L.E., Feb 1988, pp. 12-27.

<7> ——, "Apple and Apple II History", THE APPLE II GUIDE, Fall 1990, pp. 9-16.

<8> Frank Rose, WEST OF EDEN: THE END OF INNOCENCE AT APPLE COMPUTER, 1989, pp. 62.

(PART 6 — THE APPLE II PLUS)
THE APPLE II PLUS: HARDWARE

We now go cruising ahead in time about one year, to June of 1979. Applesoft BASIC had been in heavy demand since the introduction in late 1978 of an improved version. It was needed by those wanting to write and use applications that needed the capability of floating-point math. Because of this, Apple engineers had begun working in 1978 on the Apple II Plus, a modest enhancement to the Apple II. The main attraction of this newer Apple would be Applesoft in ROM, available immediately without having to load it from cassette or disk. Also, having it in ROM would move it out of the part of memory where RAM Applesoft conflicted with hi-res graphics (after all, Applesoft had commands specifically written into it for manipulating those graphics, something that Integer BASIC could only do via special CALLs to the routines in the Programmer's Aid #1 chip). With the decision made to upgrade the Apple II, other changes were made to make it more attractive to new computer buyers. The cost of RAM chips had dropped considerably, so most new II Plus systems came standard with a full 48K of RAM. Since the disk operating system consumed about 10K of memory, having the full complement of available RAM made it easier to use the Disk II with either version of BASIC. Since users would not need to add the smaller 4K memory chips, the strapping blocks that had made it possible to use either 4K or 16K RAM chips on the original Apple II were removed.

Small changes had already been made to the product since it first began distribution. Most of these changes were made primarily to simplify it and decrease costs of manufacturing. First of all, the original Apple II motherboard, designated as "Revision 0", was changed to make it possible to display two more colors in hi-res graph-

ics. The Revision 0 board had only four colors (green, violet, black, white), but Wozniak had learned that by making a simple alteration he could get two more colors (blue and orange) and two more varieties of black and white. The Revision 1 and later boards were capable of displaying all eight colors. The means of making this modification to Revision 0 Apples was described by Wozniak in his reply to an article by Allen Watson III about hi-res graphics (in the June 1979 issue of Byte magazine). With that change, people who were not afraid of doing a little electrical work on their computers had some of the benefits of an updated Apple II. Hardware bugs that Apple engineers fixed included one that caused text characters to be displayed with green and violet fringing, whether in graphics mode or text mode. The "color killer" circuit they added fixed things so that non-graphics text would display in black and white only. Another problem involved RAM configurations of either 20K or 24K (a 16K RAM chip plus one or two 4K RAM chips). In those systems a hardware bug caused the 8K of memory from $4000 to $5FFF to be duplicated in the next 8K of memory, from $6000 to $7FFF, whether there was RAM present at those locations or not. This made a 20K Apple appear to have 24K, and a 24K Apple appear to have 36K.

The Revision 1 motherboard fixed this problem as well.<1> Revision 1 boards also modified the cassette input circuit to respond with more accuracy to a weak input signal, making it easier to load data and programs from cassette. Also, one "feature" of the original Apple II was that any sound generated by the internal speaker also appeared as a signal on the cassette output connector; this was fixed in the new motherboards. Lastly, the RESET cycle was made part of the power-up circuitry, eliminating the requirement that the RESET key be pressed after turning on the computer.<2>,<3>

THE APPLE II PLUS: FIRMWARE

More important than the minor hardware changes, however, were the changes in the ROM code. The new ROM replaced the original Monitor with one that, among other things, better supported the new Disk II drive. Since RESET was now automatically activated when the power was turned on, the new ROM code had the computer automatically do a few things. It cleared the screen (displaying "APPLE][" at the top), and began a scan down the slots, starting at slot 7 down to slot 1. It examined the first few bytes of code in each card's ROM for a specific sequence that identified it as a Disk II controller card. If one was found, control was passed to that card, causing the disk drive to startup and begin loading the disk operating system into memory. If no disk controller was found, the ROM code jumped instead to the start of BASIC (instead of leaving the user in the Monitor, as in the old ROM). This "Autostart ROM", as it was called, made it possible to have a system that started up a program on the disk with little action needed by the user.

The RESET code was more intelligent in the Autostart ROM than in the Old Monitor ROM. There was now a "Cold Start" RESET (which functioned as described above), and a "Warm Start" RESET. A Warm Start RESET could occur without re-booting the Disk II (if it was present); in fact, it ensured that the disk operating system remained "connected" after RESET was pressed. This feature was implemented by setting three bytes at the end of page $03 in memory. Two of the bytes were the address of the place in memory to which the Apple should jump if RESET was pressed. The third byte was a specially coded byte created from half of the address byte. When RESET was pressed,

this special "power-up" byte was checked with the address byte. If they didn't properly match, the Monitor assumed that the power had just been turned on, and it executed a Cold Start RESET. This feature was extensively used by writers of copy protected software, so users could not modify or copy the code in memory simply by pressing the RESET key. The other major change, mentioned earlier, was the BASIC that was supplied in ROM. Gone was Steve Wozniak's hand-assembled Integer BASIC, in favor of the newer Applesoft. Since these ROM versions of BASIC used the same memory locations, they could not be used simultaneously. With the introduction of the II Plus, Apple also released the Applesoft Firmware card. This card, which plugged into slot 0, made it possible for previous Apple II owners to have some of the benefits of the II Plus without having to buy an entirely new computer. Even with that card, however, you could not use features of one BASIC while the other was active, and switching from one BASIC to the other erased any program that was being used at the time.

The two BASICs could be told apart by the prompt they used; Integer BASIC used the ">" character, but Applesoft used the "]" character. Another change made to the Monitor ROM made screen editing easier. The original Apple II's procedure for editing a line typed in BASIC or in the Monitor was tedious at best. To change a line of text in BASIC, you had to list the line, move the cursor up to the start of the line, and then use the right-arrow key to "copy" text from the screen into the input buffer. If you wanted to skip part of the line, you had to move the cursor past the text that you wanted to eliminate WITHOUT using the arrow keys. If you wanted to INSERT something into the line, you had to move the cursor off the line (above it or below it), type the additional text, and then move the cursor back into the line to finish copying the original part of the line. For example, suppose you had typed this line in Applesoft and displayed it on the 40-column screen:

```
]LIST 100
100 FOR I = 1 TO 100: PRINT "I LIKE MY APPLE":
    NEXT : END
```

To change that line so the PRINT statement read "I REALLY LIKE MY APPLE" meant either retyping the entire line, or using the edit feature. (If the line was particularly long, it was preferable to edit rather than retype the entire line). To edit this line, you would have to move the cursor up to the "1" of "100" and begin pressing the right arrow key. When you got to the "L" of "LIKE" you would have to move the cursor above or below the line, type the word "REALLY" followed by a space, then move the cursor back to the "L" of "LIKE", and continue copying with the right arrow key. After editing a line, the screen might look like this:

```
100 FOR I = 1 TO 100: PRINT "I LIKE MY APPLE":
    NEXT : END REALLY
```

(In this example, I moved the cursor down one line, typed "REALLY", and then moved it back to the start of the word "LIKE"). If you didn't make any mistakes it would read like this:

```
]LIST 100
100 FOR I = 1 TO 100:
    PRINT "I REALLY LIKE MY APPLE" : NEXT : END
```

However, if you didn't take care to skip over the extra spaces inserted in front of the word "LIKE" by the Applesoft LIST command, it could appear this way:

```
100 FOR I = 1 TO 100:
    PRINT "I   REALLY LIKE MY APPLE" : NEXT : END
```

The big problem with these cursor moves for editing under the Old Monitor was that each move required two keypresses. To move the cursor up, you had to press "ESC" and then "D" EACH TIME you wanted to move the cursor up. "ESC A" moved right, "ESC B" moved left, and "ESC C" moved the cursor down. With a long line that needed much editing, this would get old real fast. Not only was it cumbersome, but the layout of the keyboard made it difficult to remember the correct letters used for cursor movement; although "D" (up) was above "C" (down), it seemed that "D" should stand for "Down". Also confusing was that "A" was to the left of "B", but their functions were the opposite of their position! The new Autostart ROM improved this screen editing process just a bit. Now, pressing "ESC" turned on a special editing mode. Repeated presses of "I" (up), "J" (left), "K" (right), and "M" (down) continued to move the cursor until a key other than ESC was pressed. On the keyboard these letters were arranged in a sort of "directional keypad" or diamond, which made remembering the moves a little easier.

The previous ESC editing codes were still supported, but still with their previous limitations. Unfortunately, however, you still couldn't tell whether you were in the regular text entry mode or in the ESC editing mode, and often attempts at changing a line took several tries to get it right.<4>,<5> Other features added in the new Autostart ROM included the ability to pause a listing by pressing Ctrl-S (VERY helpful when trying to scan through a long program!) As mentioned above, pressing RESET would return control through the soft-entry vectors on memory page $03. This would allow a user to exit from a runaway BASIC program by pressing RESET, and still keep program and variables intact in memory (which could not be guaranteed with the old Monitor ROM).<5> John Arkley at Apple wrote the changes to the original Monitor ROM and created the Autostart ROM in November 1978 (he's the "John A" mentioned in the source code listing found in the 1981 edition of the APPLE II REFERENCE MANUAL).

After he had done the work and the ROMs had been created, Apple wanted to publish a new version of the Reference Manual to cover the Apple II Plus. The older Reference Manual (affectionately known as the "Red Book") had included an assembly language source code listing of the Monitor ROM. They wanted to include the source for BOTH versions of the Monitor, but a problem came up. While developing the Monitor, Apple had used a local mainframe computer dial-up service known as "Call Computer." They used a cross-assembler on that computer, assembled the code, and then used the resulting object code to create the ROM. (A cross-assembler is an assembler that creates object code for a processor other than the one the cross-assembler runs on. For example, if you can write 8080 machine code with an assembler running on a 6502-based computer, you are using a cross-assembler). Unfortunately, Call Computer had accidentally done a system backup with the source and destination disks reversed, erasing all the files containing the source code for the Apple II Monitors. There were no disk or cassette copies of the source code for the Autostart ROM back at Apple. Working from the source listing in the Red Book, John recreated the source file for the original Monitor, and then

disassembled his own modifications for the II Plus and re-created his Autostart ROM source file. Those reconstructed listings are what appeared in the 1981 edition of the Apple II Reference Manual.<6> Not everyone was pleased with the modifications made in the Autostart ROMs, however. Some of the authors of the magazine CALL-A.P.P.L.E. liked to refer to the new computer as the "Apple II Minus", since Arkley had to remove some of their beloved routines from the ROMs to make room for the new features. Missing from the Apple II Plus ROMs were Integer BASIC, the miniassembler, and Woz's SWEET 16 interpreter (that entire space now being used by Applesoft). Missing from the Monitor were the assembly language STEP and TRACE features, and a set of sixteen-bit multiply and divide routines.<5>

THE APPLE II PLUS: COST

The new Apple II Plus, at $1,195, sold for over $100 less than the original Apple II, although it came with more memory and had Applesoft (previously an added expense item) in ROM.

THE APPLE II PLUS: BELL & HOWELL

Apple made a deal early on with Bell & Howell to let them sell the Apple II Plus with a Bell & Howell name plate on it for use in schools. These Apples were black colored (instead of the standard beige), and had screws on the back to keep the lids on (apparently to keep students' hands out). These Apples (sometimes called "Darth Vader" Apples) also had the "shift-key mod" (see below) applied. Since Bell & Howell was a major supplier of school equipment, this was a means for Apple to get a foothold in the school environment.<7>,<8> Bell & Howell also had electronics correspondence courses, and used the black Apple II Plus for one of their courses. They offered a one year warranty, instead of the ninety-day warranty offered by Apple.<9>,<10>,<11>

THE APPLE II PLUS: EARLY USER EXPERIENCES

An Apple II veteran on GEnie, Dennis Ulm, kindly provided me with the following reproduction of his ORIGINAL Apple II Plus packing list. It gives a little picture of what early non-disk users had to work with:

APPLE II PLUS - PACKING LIST

This package should contain the following items:
item part number description
1. 600-2023 cassette tape: LITTLE BRICKOUT, COLOR DEMOSOFT
2. 600-2024 cassette tape: RENUMBER/APPEND, ALIGNMENT TEST TONE
3. 600-2025 cassette tape: FINANCE I, PENNY ARCADE
4. 600-2026 cassette tape: LEMONADE, HOPALONG CASSIDY
5. 600-2027 cassette tape: BRIAN'S THEME, PHONE LIST
6. 030-2057 manual: Introductory Programs for the Apple II Plus
7. 030-0044 manual: The Applesoft Tutorial
8. 030-0013 manual: Applesoft II BASIC Programming Reference Manual
9. 030-0004 manual: Apple II Reference Manual
10. 030-0035 publication: Apple Magazine
11. 600-0033 1 pair of game controls
12. 590-0002 cable: to hook up a cassette recorder
13. 590-0003 cable: power cord for the Apple II Plus
14. 030-0001 Apple Warranty Card
15. 600-0816 Apple II Plus System 16K or 600-0832 Apple

II Plus System 32K or 600-0848 Apple II Plus System 48K

(LITTLE BRICKOUT was an abbreviated Applesoft version of Woz's Integer BASIC Breakout game (the reason he designed the Apple II in the first place).
BRIAN'S THEME was a hi-res graphics program that drew lines on the screen in various patterns.
HOPALONG CASSIDY was a "guess who" program that also used the hi-res screen).<12>,<13> Also included in Dennis' II Plus box was this photocopied instruction sheet:

TAPE LOADING INSTRUCTIONS

If problems are encountered in LOADing tape programs, it may be necessary to "queue" (sic) the tape before LOADing. To queue a tape, use the following procedure:
1. Rewind the tape.
2. Disconnect the cable from the tape recorder (so you can hear what's on the tape).
3. Start the tape recorder in PLAY mode.
4. When a steady tone is heard, STOP the tape recorder.
5. Connect the cable to the tape recorder and adjust the volume and tone controls on the tape recorder to the recommended levels.
6. Make sure your computer is in BASIC.
7. Type LOAD.
8. START the tape playing.
9. Press RETURN.

The program should LOAD properly. If an error message occurs, repeat the procedure, but try readjusting the tone and volume controls on the tape recorder.

Dennis says that in his experience it took at least five to ten tries to get anything to load properly from tape!

THE APPLE II PLUS: MORE HARDWARE ADD-ONS

Lower-case was still not supported on the new Apple II Plus, though it was a popular user-modification. The thriving industry for Apple II peripherals made up for this shortcoming, with various vendors supplying small plug-in circuit boards that fit under the keyboard, allowing display of lower-case on the screen (and sometimes direct entry of lower-case from the keyboard). By 1981, when the Revision 7 motherboard was released for the Apple II Plus, a different method of character generation was used, which reduced radio-frequency interference that was generated. For Revision 7 boards, lower-case characters could be displayed with the addition of only a single chip. However, unless a user changed the keyboard encoder with a third-party product, only upper-case characters could be typed.<14> The keyboard itself underwent some changes, both by users and by Apple.

The original RESET key was in the upper right-hand corner of the keyboard. The problem with that key was that it had the same feel as the keys around it, making it possible to accidentally hit RESET and lose the entire program that was being so carefully entered. One user modification was to pop off the RESET keycap and put a rubber washer under it, making it necessary to apply more pressure than usual to do a RESET. Apple fixed this twice, once by replacing the spring under the keycap with a stiffer one, and finally by making it necessary to press the CTRL key and the RESET together to make a RESET cycle happen. The keyboards that had the CTRL-RESET feature made it user selectable via a small slide switch just inside the case (some people didn't want to have to press the CTRL

key to do a RESET). Another keyboard limitation was addressed through a modification that became known as the "shift-key mod". This was such a widely used trick that Apple ended up supporting it in hardware when they designed the Apple IIe. Since the II and II Plus keyboards could not directly generate lower-case characters, early word processing programs had to find some way to make up for that deficiency. Apple's own Apple Writer program used the ESC key as a shift and shift-lock key, displaying upper-case characters in inverse video and lower-case in regular video. Other programs suggested installing the shift-key mod to allow more natural entry of upper-case, using the SHIFT key already present on the keyboard. The user had to attach a wire to the contact under the SHIFT key, and run it to the game port where the input for push-button 2 was found. (This push-button PB2, $C063 in memory, was for one of an optional second pair of game paddles that third-party hardware companies supplied for the Apple II).

The program would assume that all letters being typed were in lower-case, unless the SHIFT key (attached now to paddle button PB2) was also being pressed; in that case the letter would be entered as upper-case. Since the PB2 button was not often used for a second pair of game paddles, it was unlikely that this modification would be accidentally triggered by pressing one of the game paddle buttons. This modification did NOT use buttons PB0 or PB1, which were on the first pair of game paddles. (PB0 and PB1 now correspond to the Open-Apple and Solid-Apple/Option keys on modern Apple II computers).

NOTES

<1> ——, "Memory Organization", APPLE II REFERENCE MANUAL, 1979, 1981, pp. 70-73.

<2> ——, APPLE II REFERENCE MANUAL, 1979,1981, pp. 25-27, 34-36.

<3> Bruce Field, "A.P.P.L.E. Doctor", CALL-A.P.P.L.E., Jan 1984, pp. 74-75.

<4> ——, "Apple and Apple II History", THE APPLE II GUIDE, Fall 1990, pp. 9-16.

<5> ——, APPLE II REFERENCE MANUAL, 1979,1981, pp. 25-27, 34-36.

<6> John Arkley, (personal telephone call), Sep 9, 1991.

<7> Joe Regan, GEnie A2 ROUNDTABLE, Category 2, Topic 16, Apr 1991.

<8> Dan Paymar, "Curing A Shiftless Apple", CALL-A.P.P.L.E., May 1982, pp. 63-64.

<9> Tom Vanderpool, GEnie A2 ROUNDTABLE, Category 2, Topic 16, Mar & Aug 1991.

<10> Tom Zuchowski, GEnie A2 ROUNDTABLE, Category 2, Topic 16, Mar 1991.

<11> Steve Hirsch, GEnie A2 ROUNDTABLE, Category 2, Topic 16, Mar 1991.

<12> Dennis Ulm, GEnie A2 ROUNDTABLE, Category 2, Topic 16, Apr 1991.

<13> Wes Felty, GEnie. A2 ROUNDTABLE, Category 2, Topic 16, Apr 1991.

<14> Bruce Field, "A.P.P.L.E. Doctor", CALL-A.P.P.L.E., Jan 1984, pp. 74-75.

(PART 7 - THE APPLE IIE)
PRELUDE: THE APPLE III PROJECT

As we continue our travels examining the history of the Apple II, let's fine tune the time-machine card on our souped-up Apple II to concentrate specifically on the next version of the II, the IIe. As before, just accelerate the microprocessor speed to 88 MHz, and watch out for the digital fire-trails! Destination: 1982.

Between the years 1979 and 1983, although no new versions of the Apple II were released, it enjoyed a broad popularity and annually increasing sales. The open architecture of the computer, with its fully described hardware and firmware function via the Reference Manual, made it appealing both to hardware and software hackers. Third-party companies designed cards to plug into the internal slots, and their function varied from making it possible to display and use 80-column text, to clocks and cards allowing the Apple II to control a variety of external devices. During this time there was also an explosion of new software written for this easily expandable machine, from the realm of business (VisiCalc and other spreadsheet clones), to utilities, to games of all types. Each month a host of new products would be available for those who wanted to find more things to do with their computer, and the Apple II was finding a place in the home, the classroom, and the office.

At Apple Computer, Inc., however, the Apple II was not viewed with the same degree of loyalty. By September 1979 the Apple II had continued to be a sales leader. However, few at Apple believed that the II could continue to be a best seller for more than another year or two. Since Apple Computer, Inc. was a business, and not just a vehicle for selling the Apple II computer, they began to enlarge the engineering department to begin designing new products.<1> These new design efforts had begun as far back as late 1978. Their first effort was an enhanced Apple II that used some custom chips, but that project was never finished. They also began work on a different, more powerful computer that would use several identical microprocessor chips sharing tasks. The main advantage would be speed, and the ability to do high precision calculations. This computer was code-named Lisa, and because it was such a revolutionary type of design, they knew it would take many years to come to actual production. Because of the power it was to have, Apple executives felt that Lisa was the future of the company.<2>,<14>

Because they knew that the Lisa project would take a long time to complete, and because the Apple II was perceived to have only a short remaining useful life as a product, they began a new computer project called the Apple III. Instead of building upon the Apple II as a basis for this new computer, they decided to start from scratch. Also, although Wozniak made most of the design decisions for the II, a committee at Apple decided what capabilities the Apple III should have. They decided that the Apple III was to be a business machine, and not have the home or arcade-game reputation that the II had. It was to have a full upper/lowercase keyboard and display, 80-column text, and a more comprehensive operating system. They also decided that since it would be a while before many application programs would be available for this new computer, it should be capable of running existing Apple II software. In some ways this handicapped the project, since it was then necessary to use the same microprocessor and disk drive hardware as was used in the Apple II.<3>

Apple executives also decided that with the introduction of the Apple III they wanted a clear separation between it and the Apple II in regards to marketing. They did not want ANY overlap between the two. The III would be an 80-column business machine and was predicted to have ninety percent of the market, while the Apple II would be a 40-column home and school machine and would have ten percent of the market. Apple's executives were confident that after the release of the Apple III, the Apple II would quickly lose its appeal.<4> Because of their

desire for a strong and distinct product separation, the Apple II emulation mode designed into the Apple III was very limited. The engineers actually ADDED hardware chips that prevented access to the III's more advanced features from Apple II emulation mode. Apple II emulation couldn't use 80 columns, and had access to only 48K memory and none of the better graphics modes. As a result, it wouldn't run some of the better Apple II business software, during a time when there wasn't much NEW business software for the Apple III. The Apple III engineers were given a one year target date for completion. It was ready for release in the spring of 1980, but there were problems with both design and manufacturing. (It was the first time that Apple as a company tried to come out with a new product; the Apple II had been designed and built by Wozniak when he WAS the engineering department).

The first Apple III computers were plagued with nearly 100% defects and had to be recalled for fixes. Although Apple took the unprecedented step of repairing all of the defective computers at no charge, they never recovered the momentum they lost with that first misstep, and the III did not become the success Apple needed it to be.<3> Although all of the bugs and limitations of the Apple III were eventually overcome, and it became the computer of choice within Apple, it did not capture the market as they had hoped. At that point, they weren't sure exactly what to do with the II. They had purposely ignored and downplayed it for the four years since the II Plus was released, although without its continued strong sales they would not have lasted as a company. In a 1985 interview in Byte magazine, Steve Wozniak stated:

"When we came out with the Apple III, the engineering staff cancelled every Apple II engineering program that was ongoing, in expectation of the Apple III's success. Every single one was cancelled. We really perceived that the Apple II would not last six months. So the company was almost all Apple III people, and we worked for years after that to try and tell the world how good the Apple III was, because we KNEW [how good it was] ... If you looked at our advertising and R&D dollars, everything we did here was done first on the III, if it was business related. Then maybe we'd consider doing a sub-version on the II. To make sure there was a good boundary between the two machines, anything done on the II had to be done at a lower level than on the III. Only now are we discovering that good solutions can be implemented on the II ... We made sure the Apple II was not allowed to have a hard disk or more than 128K of memory. At a time when outside companies had very usable schemes for adding up to a megabyte of memory, we came out with a method of adding 64K to an Apple IIe, which was more difficult to use and somewhat limited. We refused to acknowledge any of the good 80-column cards that were in the outside world—only ours, which had a lot of problems."<4>

Wozniak went on in that interview to say that at one time he had written some fast disk routines for the Pascal system on the Apple II, and was criticized by the Apple III engineers. They didn't think that anything on the II should be allowed to run faster than on a III. That was the mindset of the entire company at the time. Apple has been much maligned for the attention they gave the Apple III project, while suspending all further development on the Apple II. They pegged their chances for the business market in 1980 on the Apple III. Even Steve Wozniak had stated in another interview, "We'd have sold tons of [computers in the business market] if we'd have let the II evolve ... to become a business machine called the III instead of

developing a separate, incompatible computer. We could have added the accessories to make it do the business functions that the outside world is going to IBM for."<3> Part of the problem was the immaturity of the entire microcomputer industry at the time. There had NEVER been a microcomputer that had sold well for more than a couple of years before it was replaced by a more powerful model, usually from another company. The Altair 8800 and IMSAI had fallen to the more popular and easier to use Apple II and TRS-80 and Commodore PET, as well as other new machines based on the Intel 8080 and 8088 processors. It is entirely understandable that Apple's attitude between 1978 and 1980 would be of panic and fear that they wouldn't get a new computer out in time to keep their market share and survive as a company. However, during the entire time when Apple was working on the III as a computer to carry the company through until Lisa would be ready, and during the entire time that the Apple II was ignored by its own company, it continued to quietly climb in sales. It is a credit to both the ingenuity of Wozniak in his original design, and to the users of the Apple II in THEIR ingenuity at finding new uses for the II, that its value increased and stimulated yet more new sales. The Apple II "beat" the odds of survival that historically were against it.

THE APPLE IIE: BEGINNINGS

When Apple saw that the sales on the Apple II were NOT going to dwindle away, they finally decided to take another look at it. The first new look at advancing the design of the II was with a project called "Diana" in 1980. Diana was intended primarily to be an Apple II that had fewer internal components, and would be less expensive to build. The project was later known as "LCA", which stood for "Low Cost Apple". Inside Apple this meant a lower cost of manufacturing, but outsiders who got wind of the project thought it meant a $350 Apple II. Because of that misconception, the final code name for the updated Apple II was "Super II", and lasted until its release.<5>

THE APPLE IIE: HARDWARE

Part of the IIe project grew out of the earlier work on custom integrated circuits for the Apple II. When they finally decided to go ahead and improve the design by adding new features, one of the original plans was to give the Apple II an 80-column text display and a full upper/lowercase keyboard. Walt Broedner at Apple did much of the original hardware planning, and was one of those at Apple who pushed for the upgrade in the first place. To help maintain compatibility with older 40-column software (which often addressed the screen directly for speed), he decided to make 80-columns work by mirroring the older 40 column text screen onto a 1K memory space parallel to it, with the even columns in main memory and the odd columns in this new "auxiliary" memory. To display 80-column text would require switching between the two memory banks. Broedner realized that with little extra effort he could do the same for the entire 64K memory space and get 128K of bank-switchable memory. They put this extra memory (the 1K "80-column card, or a 64K "extended 80-column card") in a special slot called the "auxiliary" slot that replaced slot 0 (the 16K Language Card was going to be a built-in feature). The 80-column firmware routines were mapped to slot 3, since that was a location commonly used by people who bought 80-column cards for their Apple II's, and was also the place where the Apple Pascal system expected to find an external terminal. The auxiliary slot also supplied some special

video signals, and was used during manufacture for testing on the motherboard. The engineers that worked on the IIe tried hard to make sure that cards designed for the II and II Plus would work properly in the new computer. They even had to "tune" the timing on the IIe to be slightly OFF (to act more like the II Plus) because the Microsoft CP/M Softcard refused to function properly with the new hardware.

A socket was included on the motherboard for attaching a numeric keypad, a feature that many business users had been adding (with difficulty) to the II Plus for years. The full keyboard they designed was very similar to the one found on the Apple III, including two unique keys that had first appeared with the III—one with a picture of an hollow apple ("open-apple") and the other with the same apple picture filled in ("solid-apple"). These keys were electrically connected to buttons 0 and 1 on the Apple paddles or joystick. They were available to software designers as modifier keys when pressed with another key; for example, open-apple-H could be programmed to call up a "help" screen. The newer electronics of the keyboard also made it easier to manufacture foreign language versions of the Apple IIe.<6> Overall, Broedner and Peter Quinn (the design manager for the IIe and later the IIc projects) and their team managed to decrease the number of components on the motherboard from over one hundred to thirty-one, while adding to the capabilities of the computer by the equivalent of another hundred components.

THE APPLE IIE: FIRMWARE

Peter Quinn had to beg for someone to help write the firmware revisions to the Monitor and Applesoft for the IIe. He finally got Rich Auricchio, who had been a hacker on the Apple II almost from the beginning. Quinn said in a later interview, "You cannot get someone to write firmware for this machine unless he's been around for three or four years. You have to know how to get through the mine field [of unofficial but commonly used entry points]. He [Rick] was extremely good. He added in all the 80-column and Escape-key stuff." Quinn also got Bryan Stearns to work on the new Monitor.<6>,<7>

Changes were made in the ROMs to support the new bank-switching modes made necessary by having two parallel 64K banks of RAM memory. To have enough firmware space for these extra features, the engineers increased the size of the available ROM by making IT bank-switched. This space was taken from a location that had previously not been duplicated before—the memory locations used by cards in the slots on the motherboard. Ordinarily, if you use the Monitor to look at the slot 1 memory locations from $C100 through $C1FF, you get either random numbers (if the slot is empty), or the bytes that made up the controller program on that card. Any card could also have the space from $C800 through $CFFF available for extra ROM code if they needed it. If a card in a slot did a read or write to memory location $CFFF, the $C800-$CFFF ROM that belonged to that card would appear in that space in the Apple II memory. When another card was working, then ITS version of that space would appear. On the IIe, they made a special soft-switch that would switch OUT all the peripheral cards from the memory, and switch IN the new expanded ROM on the motherboard. The firmware in the new bank-switched ROM space was designed to avoid being needed by any card in a slot (to avoid conflicts), and much of it was dedicated to making the 80-column display (mapped to slot 3) work properly. Also added were enhancements to

the ESC routines used to do screen editing. In addition to the original ESC A, B, C, and D, and the ESC I, J, K, and M added with the Apple II Plus, Auricchio added the ability to make the ESC cursor moves work with the left and right arrow keys, and the new up and down arrow keys. The new IIe ROM also included a self-test that was activated by pressing both apple keys, the control key, and RESET simultaneously.<5>

THE APPLE IIE: SUCCESS

The new Apple IIe turned out to be quite profitable for Apple. Not only was it more functional than the II Plus for a similar price, but the cost to the dealers selling it was about three times the cost of manufacture. They had gotten their "Low Cost Apple", and by May of 1983 the Apple IIe was selling sixty to seventy thousand units a month, over twice the average sales of the II Plus. Christmas of 1983 saw the IIe continue to sell extremely well, partly resulting from the delayed availability of the new IBM PCjr. Even after the Apple IIc was released in 1984, IIe sales continued beyond those of the IIc, despite the IIc's built-in features.<8>

THE APPLE IIE: MODIFICATIONS

Early Apple IIe motherboard's were labelled as "Revision A". Engineers determined soon after its introduction that if the same use of parallel memory was applied to the hi-res graphics display as was done with the text display, they could create higher density graphics. These graphics, which they called "double hi-res", also had the capability of displaying a wider range of colors, similar to those available with the original Apple II lo-res graphics. The IIe motherboards with the necessary modifications to display these double hi-res graphics were labelled "Revision B", and a softswitch was assigned to turning on and off the new graphics mode. Later versions of the IIe motherboards were again called "Revision A" (for some reason), although they HAD been modified for double hi-res graphics. The difference between the two "Revision A" boards was that the latter had most of the chips soldered to the motherboard. An original "Revision A" board that had been changed to an Enhanced IIe was not necessarily able to handle double hi-res, since the change to the Enhanced version involved only a four-chip change to the motherboard, but not the changes to make double hi-res possible.<9>

THE APPLE IIE: THE ENHANCED IIE

This version of the Apple IIe was introduced in March of 1985. It involved changes to make the IIe more closely compatible with the Apple IIc and II Plus. The upgrade consisted of four chips that were swapped in the motherboard: The 65c02 processor, with more assembly language opcodes, replaced the 6502; two more chips with Applesoft and Monitor ROM changes; and the fourth a character generator ROM that included graphics characters (first introduced on the IIc) called "MouseText". The Enhanced IIe ROM changes fixed most of the known problems with the IIe 80-column firmware, and made it possible to enter Applesoft and Monitor commands in lower-case. The older 80-column routines were slower than most software developers wanted, they disabled interrupts for too long a time, and there were problems in making Applesoft work properly with the 80-column routines. These problems were solved with the newer ROMs. Monitor changes also included a return of the mini-assembler, absent since the days of Integer BASIC. It was activated by entering a "!" command in the Monitor, instead of a jump

to a memory location as in the older Apple][. Also added were an "S" command was added to make it possible to search memory for a byte sequence, and the ability to enter ASCII characters directly into memory. However, the "L" command to disassemble 6502 code still did not handle the new 65c02 opcodes as did the IIc disassembler. Interrupt handling was also improved. Applesoft was fixed to let commands such as GET, HTAB, TAB, SPC, and comma tabbing work properly in 80-column mode. The new MouseText characters caused a problem for some older programs at first, until they were upgraded; characters previously displayed as inverse upper-case would sometimes display as MouseText instead.<10>,<11>

THE APPLE IIE: THE PLATINUM IIE

This version of the IIe, introduced in January 1987, had a keyboard that was the same as the IIGS keyboard, but the RESET key was moved above the ESC and "1" keys (as on the IIc), and the power light was above the "/" on the included numeric keypad (the internal numeric keypad connector was left in place). The CLEAR key on the keypad generated the same character as the ESC key, but with a hardware modification it could generate a Ctrl-X as it did on the IIGS. The motherboard had 64K RAM in only two chips (instead of the previous eight), and one ROM chip instead of two. An "extended 80-column card" with 64K extra memory was included in all units sold, and was smaller than previous versions of that memory card. No ROM changes were made. The old shift-key modification was installed, making it possible for programs to determine if the shift-key was being pressed. However, if using a game controller that actually used the third push-button (where the shift-key mod was internally connected), pressing shift and the third push-button simultaneously causes a short circuit that shuts down the power supply.<12>

THE APPLE IIE: EMULATION CARD ON MACINTOSH LC

In early 1991, Apple introduced a new version of the Apple IIe. This one was designed to be exactly like the 128K Platinum IIe, with the modification that it had a color Macintosh attached to it. This Apple IIe cost only $199, but the required Macintosh peripheral went for about $2,495, which makes the combination the most expensive Apple II ever made. Apple engineers managed to put the function of an entire IIe onto a card smaller than the old Disk II controller card. With version 2.0 of the Apple II interface software, more of the memory allocated to the Macintosh can be used by the IIe (strange way of designing an Apple II!). However, unlike all previous versions of the IIe, there are no hardware-based slots on the IIe card; instead, there are software-based slots that are allocated by moving icons that represent various peripherals into "slots" on the Mac screen. (Oh, yes; it runs some Mac software, too).

To use 5.25 disks with this Apple IIe, there is a cable that attaches to the card. The cable splits into a game connector (for paddles or joystick operation) and a connector that accepts IIc and IIGS style 5.25 drives. The IIe card runs at a "normal" (1 MHz) speed and a "fast" (2 MHz) speed.<13> It has limitations, however. For a 1991 Apple II, it is limited in being unable to be accelerated beyond 2 MHz (a Zip Chip can run a standard IIe at 8 MHz), and the screen response seems slow, since it is using a software-based Mac text display instead of the hardware-based Apple II character ROM. As a Macintosh it lacks the power and speed of the newer Macintosh II models (which also run in color). But if having a Apple II

and a Mac in one machine is important, this is the best way to do it.

NOTES

<1> Freiberger, Paul, and Swaine, Michael. "Fire In The Valley, Part I (Book Excerpt)", A+ Magazine, Jan 1985, p. 45-48.
<2> Freiberger, Paul, and Swaine, Michael. "Fire In The Valley, Part II (Book Excerpt)", A+ Magazine, Jan 1985, p. 46,51.
<3> Rubin, Charles. "The Life & Death & Life Of The Apple II", Personal Computing, Feb 1985, p. 72.
<4> Williams, Gregg, and Moore, Rob. "The Apple Story, Part 2: More History And The Apple III", Byte, Jan 1985, pp. 177-178.
<5> Tommervik, Al. "Apple IIe: The Difference", Softalk, Feb 1983, pp. 118-127, 142.
<6> Williams, Gregg. "'C' Is For Crunch", Byte, Dec 1984, pp. A75-A78, A121.
<7> Little, Gary. Inside The Apple //c, 1985, pp. 1-7.
<8> Rose, Frank. West Of Eden: The End Of Innocence At Apple Computer, 1989, pp. 98-99.
<9> Weishaar, Tom. "Ask Uncle DOS", Open-Apple, Dec 1986, p. 2.86.
<10> Weishaar, Tom. "A Song Continued", Open-Apple, Mar 1985, pp. 1.20-1.21.
<11> Weishaar, Tom. "Demoralized Apple II Division Announces Enhanced IIe...", Open-Apple, Apr 1985, pp. 1.25-1.27.
<12> Weishaar, Tom. "Apple Introduces An Updated IIe", Open-Apple, Jan 1987, p. 3.1.
<13> Doms, Dennis. "The Apple II as Mac peripheral", Open-Apple, Jul 1991, pp. 7.43-7.44.
<14> This was an early version of the Lisa project. When the 68000 microprocessor became available from Motorola, it was decided to use that as a single processor for the Lisa. Also, after Steve Jobs paid a visit to the Xerox lab and saw the Xerox Star computer with its icon interface and mouse pointing device, he pushed strongly for the Lisa to work in that way.

(PART 8 - THE APPLE IIC)
PRELUDE: STEVE JOBS AND MACINTOSH

Rewind back to 1982, before the Apple IIe was introduced, and adjust the tuning on our Flux Capacitor-enhanced peripheral card. Before dealing specifically with the smallest Apple II, the IIc, it would help to take an aside and look at some other events happening at Apple Computers, Inc. at this time that affected its development. If you recall, the Lisa project was designated as the computer that was considered to be the future of Apple. From a series of parallel processors and a "bit slicing" architecture, to a focus on the Motorola 68000 microprocessor as the controller of this advanced computer, the project had been progressing very slowly.

It was begun back in 1979 with the same focus as any other Apple product: "Both [Apple III and Lisa] had been conceived of as nifty pieces of hardware rather than as products to appeal to a specific market: At Apple you designed a box and people bought it because it was neat, not because any thought had been given to what it would do for them."<1> However, a significant change occurred in 1979 when Xerox bought a large chunk of Apple stock. In return for being allowed this stock purchase, Xerox allowed some of their research ideas to be used in designing an office computer. After Steve Jobs visited the Xerox Palo Alto Research Center in 1979 and saw the user-

interface on their Alto computer—icons, graphics-based text characters, overlapping windows, and a pointing device called a "mouse"—the Lisa took on a distinct personality that made it possible to become the ultra-computer Apple needed. This was important, since by 1981 Apple executives were getting sweaty palms worrying about the future. The Apple III was clearly NOT taking the business world by storm.

Unfortunately for Jobs, who was excited about using the Xerox technology in designing a new computer, he was excluded from the Lisa project. After the problems associated with the introduction of the Apple III, a reorganization in 1980 moved the Apple II and III into one division, and the Lisa into another. Lisa was put under the control of John Couch, and Jobs was not allowed to participate. Since Lisa had been taken away, Jobs in 1981 began to assemble a team to "out-Lisa the Lisa" by creating a smaller, less expensive computer that would do the same thing. Jef Raskin, the engineer that helped design it, called it Macintosh. While the Macintosh developed as a pirate project with a smaller team and less money than Lisa, the concept of an "appliance" computer also emerged. Instead of those messy slots and a lid that popped off (which made the Apple II so popular with the hacker community), Jobs' team was sold on the idea that all necessary features should simply be built-in and the case sealed. It would be something that you just plugged in, turned on, and started using. With the Xerox Alto mouse/icon/window interface it would not only be easy to set up and turn on, but also easy to use.

THE APPLE IIC: BEGINNINGS

What was happening with the Apple II during this time? The efforts to make it less expensive to build were progressing, and the Apple IIe was in the formative stages. In the summer of 1981 someone proposed a portable Apple II, a book-sized computer. It wasn't until Steve Jobs became interested in it as engineering challenge, well after Macintosh was under way, that anything came of the idea:

"...one day late in '82, Paul Dali showed him [Jobs] a photograph of a Toshiba portable and they started fooling around with the idea of an Apple II that would look like the Toshiba but come with a built-in disk drive. They took out a IIe circuit board and a disk drive and a keyboard and played with them until they arrived at a promising configuration—keyboard in front, disk drive in back, circuit board in between. What got Jobs excited about this idea was the engineering difficulty of squeezing it all into a package not much bigger than a notebook. And a machine so small wouldn't have the expandability that characterized all the other II's. Like Macintosh, it could be taken out of the box, plugged in, and put to work—no extra parts to buy, no cables to figure out. It was the II reinvented as an appliance."<2>

As with all Apple projects, the IIc went by various code names during its development, for the sake of internal communications and to keep outsiders from knowing what was going on. The various names used included VLC (Very Low Cost), Yoda, ET, IIb (for "Book"), and Teddy (which stood for "Testing Every Day"). Also, following a long standing tradition at Apple, some of the code names assigned to the project at various times were names of children of people at Apple: Chels, Jason, Lolly, Sherry, and Zelda. These names persist in the source code for the firmware for the IIc as later printed in the technical reference manual; the serial port driver is called a "Lolly" driver.<3> During the time the IIc was under develop-

ment, Apple was working on a change in the look of their products. They planned a more European styling, and a color scheme called "Snow White". The IIc would be the first product with the new appearance and color.

THE APPLE IIC: HARDWARE

As mentioned earlier, the IIc had its origins while the IIe project was going on. When Steve Jobs became involved, he felt they should continue with the open IIe as they had planned, but do this other Apple II as a product "focused" to a specific group of customers, primarily new users. Originally he had planned a closed Apple II that had a built-in mouse port, one serial port, and some other features. What they ended up with at that point was just a computer and a keyboard. Walt Broedner, the engineer who pushed for the Apple IIe to be produced, used some of their previous work with custom IC's for the disk controller and combined both projects together to make the IIc.<4> Although he was told it was not be possible, Jobs strongly pushed for the mouse in this closed Apple II to be compatible with the Macintosh mouse—and they managed to make it work.<2> Regarding the plans for a single serial port, however, Apple's marketing people pointed out to Jobs that many people were going to want both a printer AND a modem, so they added a second port to the original design. They decided to use serial ports on the IIc instead of parallel ports for a couple of reasons. First, the socket for a serial port is smaller than a parallel port, and it would fit better onto a small box like the IIc. Also, Apple's general direction at the time was to get consistency in its hardware, and they had decided to make everything they made use a serial interface.<4>

They began work on the Apple IIc in earnest right after the IIe was finished. Because they were trying to squeeze an Apple IIe with 128K, 80 column routines, two serial cards, disk controller, and a mouse card into an 11 by 12-inch case, the design challenges were greater than with the IIe (recall that this was what appealed to Steve Jobs). The size of the case was determined by the decision to make it able to fit into a standard-sized briefcase.<4> Apple also had the international market in mind when they designed the IIc. A special chip containing the keyboard map could easily be changed depending on the country where the computer would be sold, to make it consistent with regional keyboard differences. The external pushbutton would switch between the two different keyboards, between a UK and German layout, for example. In the U.S. version of the IIc it switched from a standard Sholes keyboard (also known as "QWERTY") to a Dvorak keyboard (which allows faster touch typing).

The decision for the foreign keyboards came first; the added bonus for American versions of getting Dvorak came as an extra bonus, to save having two different cases (one for US and one for foreign versions).<4> One problem in creating such a compact computer was dealing with heat production. Apple engineers wanted it to be able to function in environmental temperatures up to 40 degrees Celsius (about 104 degrees Fahrenheit). One article published at the time of its introduction mentioned jokingly that the designers wanted to make the IIc capable of doing a long disk sort (sorting data in a disk file) while on the beach in Florida in the summer! Their major obstacle was the heat generated by the internal 5.25 disk drive. They tried some special low power drives (which would have been much more expensive), but they didn't overcome the heat problem even with them. Eventually they tried a complicated venting scheme that was designed by drilling holes into a case and putting it into an oven to let them

measure internal temperatures. The engineers were surprised when they found that the normal power disk drive worked and generated less overall heat within the case than the special low power drive did. The only explanation they could come up with was that the normal power drive generated enough heat to cause it to rise, which pulled cool air in through the vents by convection.<4>

THE APPLE IIC: FIRMWARE

Since they used the newer 65c02 chip, which ran cooler and had 27 additional commands that could be used by assembly language programs, Apple's programmers had some new power to use in firmware design. Such power was needed to squeeze in all the firmware code for the IIe, plus code for the disk controller, serial cards, mouse card, and 80 column card into 16K of ROM space. The firmware for the IIc was written by Ernie Beernink, Rich Williams, and James Huston. They designed it to look (to a software application program) exactly like a IIe with an Apple Super Serial Card in slots 1 and 2, an 80-column card in slot 3, a mouse in slot 4, and a Disk II in slot 6 (though there were NO slots in hardware). Since these first IIc's had nothing emulated in slot 5, the firmware authors immortalized themselves by making a "ghost" peripheral appear to be present in that slot. Entering this Applesoft program:

```
100 IN#5 : INPUT A$ : PRINT A$
```

and running it would print the names of the authors. (They used a decoding scheme to extract the names, character by character, so a simple ASCII scan of the ROM would not show their little trick). This "feature" had to be removed in later revisions of the IIc ROM, because an actual disk device was added then to slot 5.<4>,<5> What about the unassigned slot 7? Here they put a small piece of code to allow booting from the external 5.25 drive by typing "PR#7" from Applesoft. The programmers fixed some known bugs in the IIe ROMs, and added 32 graphics characters they called MouseText. To make MouseText fit they removed the ability to use flashing characters (when in 80 column mode) and replaced those characters with MouseText. Apple veteran Bruce Tognazzini designed the MouseText characters, which included a picture of a running man (perhaps to suggest "running" a program). He later sent a letter to Call-A.P.P.L.E. magazine to warn programmers that the Running Man characters (assigned to "F" and "G") had been determined to be unnecessary and would probably be replaced eventually. (This did eventually happen, but not with the IIc).

Beernick, Williams, and Huston also made some minor changes to the Applesoft part of the ROM. They fixed things so Applesoft commands could be entered in lowercase (and translated into uppercase). They removed the Applesoft commands that were specific to the obsolete cassette interface (which was absent in the IIc) and made Applesoft more compatible with 80 columns.<4>,<6> They did NOT go so far as to make any major changes in Applesoft to use the newer 65c02 commands and therefore fix known bugs or add features to this seven year old language. Their reluctance stemmed from the fact that historically many BASIC programs had made use of undocumented assembly language entry points in Applesoft, and any changes they would make here made it more likely that older programs would crash unexpectedly.<4>

THE APPLE IIC: PRODUCT INTRODUCTION

Apple's introduction of the new IIc came at an "event" at the Moscone Center in downtown San Francisco on April 24th, 1984. It was entitled "Apple II Forever", and was described as "part revival meeting, part sermon, part roundtable discussion, part pagan rite, and part county fair". Apple's objectives here were to introduce the Apple IIc, describe how it fit into the company's marketing strategy, show off new software that was made to work with the new computer, and emphasize that Apple was still firmly behind the Apple II line of computers. (Steve Jobs also took some of the time to report on the sales of the Macintosh in its first 100 days).<7>

One of the interesting things they did at the "Apple II Forever" event was the actual introduction of the IIc. Giant video screens were used to show previews of Apple's TV commercials for the IIc, as well as slides and images of the speakers, including Wozniak, Jobs, and Apple's new president, John Sculley. Sculley spoke of "sharing power", and then demonstrated that in a unique way: "After holding up the tiny IIc for everyone to see and eliciting a response that they'd like to see it better, Sculley ordered the house lights on. As the light burst forth, nearly every fifth person in the audience stood up, waving high a IIc. As startled dealers cheered uproariously, the Apple plants passed the IIcs to them. Within seconds of its introduction, more than a thousand Apple dealers had a production-line IIc in their hands."<7> When Jobs gave his report on the Mac, it revealed some interesting statistics. He told them that the first industry standard was the Apple II, which sold fifty thousand machines in two and a half years. The second standard was the IBM PC, which sold the same amount in eight months. Macintosh had done sold its fifty thousand machines only 74 days after its introduction. Although sales would not be nearly as good, Apple took orders that day for fifty thousand Apple IIc's in just over seven HOURS.

At the "Apple II Forever" event, they also had a general software exhibition and a setup called the Apple II Museum. This contained Apple memorabilia, and included Woz's original Apple I, and a reproduction of Steve Jobs' garage where it was built. Although not on the schedule, "Apple II Forever" included an early-afternoon earthquake centered south of San Jose that measured 6.2 on the Richter scale.

THE APPLE IIC: SUCCESS?

Their original goal had been to sell the IIc for $995. As productions costs turned out, they found that they couldn't hit that price, so they came up with $1,295, balancing the decision with the number of people who were predicted to buy the optional Monitor IIc or an external Disk IIc drive. The only problem was that although the IIc was a technological breakthrough in miniaturization, customers at that time didn't value smallness. They viewed something that was too small as also being cheap and lacking power. Although the Apple IIc was equivalent to a IIe loaded with extra memory, a disk drive, two serial cards, and a mouse card, most customers seemed to want the more expandable IIe. Apple marketing went to much effort to make the IIc attractive, but it didn't sell as well as the IIe. Just as IBM overestimated the market when producing its PCjr (which eventually failed and was discontinued), so did Apple when producing the IIc (and the original Macintosh).<7>

THE APPLE IIC: OVERCOMING LIMITATIONS

Although the IIc did not have any slots for plugging in peripheral cards that had traditionally been used in the Apple II, the ports that were built-in had the capability to do much of what the slots had often been used for. The serial ports were compatible with any serial device; this

included common ones such as printers and modems, and uncommon ones like security controllers, clocks, and speech synthesizers. Some third party companies also supplied serial-to-parallel converters for IIc owners who wanted to use parallel printers made by Epson, Okidata, and C. Itoh that were popular elsewhere in the computer world. There was, of course, the AppleMouse IIc sold by Apple. It plugged into the game port on the IIc. Also available were two types of touch tablets: The Power Pad (Chalkboard) and Koala Pad (Koala Technologies), though the latter sold best. The Koala pad would appear to a program to be the same as a joystick, but could not emulate the mouse.<8> The disk port on the original IIc was only designed to control an external 5.25 disk drive.

Apple sold the Disk IIc for $329, and other companies later sold similar drives for less. Despite this firmware limitation, Quark Engineering released a 10 MB Winchester hard drive called the QC10 that would work with this disk port, and was the first hard disk available for the IIc.<8> The video port worked with a standard monitor, but had access to all video signals. Included with the original IIc was an RF modulator that allowed it to be connected to a standard television (for color games). An RGB adapter box attached to the video port would allow a true RGB monitor to be attached, giving color and sharp, readable 80 column text on the same monitor. Apple also sold a flat-panel liquid crystal display for the IIc that attached to this video port. It was capable of 80 columns by 24 lines, as well as double hi-res graphics. Apple's price was about $600, but it looked somewhat "squashed" vertically, and did not sell well. Another company marketed a better flat panel liquid crystal display called the C-Vue. With a battery attached to the 12V input, and a liquid crystal display, the IIc could be made into a truly portable computer.<8>

THE APPLE IIC: ENHANCEMENTS

The earliest change made available for the IIc was a motherboard swap that fixed a hardware bug causing some non-Apple modems to fail if used at 1200 baud. This modification was made only if the owner could show they needed the change (that is, they owned a 1200 baud modem that wouldn't work). The first significant upgrade available for Apple IIc owners was also available as a free upgrade for previous owners. Changes were made to the disk port firmware to accommodate the new 800K UniDisk 3.5. Using Apple's Protocol Converter scheme (later called "Smartport"), this new IIc could handle four 3.5 disk drives, or three 3.5 disk drives and one 5.25 drive. With the UniDisk 3.5 upgrade, the internal 16K ROM was increased in size to a 32K ROM that was bank-switched to make space for the extra code necessary to implement the Smartport. Also added were additional serial port commands to improve compatibility with the older Super Serial Card. The Mini-Assembler, absent from the Apple II ROMs since the days of the original Integer BASIC Apple II, was added back in, with support for the extra commands provided by the newer 65c02 processor (the disassembler had always supported those new commands). The STEP and TRACE Monitor commands made a comeback, having also been a casualty of the 1979 Autostart ROM for the Apple II Plus. Lastly, the new IIc ROMs included a built-in diagnostic program to do limited testing of the computer for internal failures, and had improved handling of interrupts.<9>

The next Apple IIc upgrade was known as the Memory Expansion Apple IIc. This came as a response to requests for the ability to add extra memory to the IIc. Applied

Engineering had already produced a Z-80 coprocessor for the IIc (to allow access to CP/M software), and an expanded memory card, up to 1 MB, which would either act as a RAMdisk for ordinary ProDOS applications, or as extra memory for the AppleWorks desktop (through a special patching program).

Seeing the popularity of this, Apple released this third version of the IIc ROMs and motherboard, this time with a RAM expansion slot included. The Apple IIc Memory Expansion Card could take up to 1 MB of RAM, in 256K increments. The firmware in the new ROMs made it work as a RAMdisk automatically recognized by ProDOS and following the Smartport protocol that had been designed for the UniDisk 3.5. Apple even included code in the new ROM to patch DOS 3.3 so it could be used as a RAMdisk with that system (400K maximum size), and did the same with Pascal v1.3. Also, because this firmware was in the motherboard ROM, ANY company could make memory cards to attach to this version of the IIc. Other changes made in this version of the IIc ROM included moving the mouse firmware from slot 4 to slot 7, and putting the RAMdisk firmware into slot 4. Also fixed was a bug that caused a write-protected 3.5 disk to be incorrectly identified with early versions of the UniDisk 3.5.<9>,<10>

Since code as complex as ROM firmware rarely makes it out the door without at least one bug, Apple had to make one final improvement to the IIc ROM. The Revised Memory Expansion Apple IIc (ROM version 4) included changes which made it easier to identify if no RAM chips had been installed on the memory card. A problem with keyboard buffering was also fixed. Lastly, this version of the ROM resolved an obscure bug in the slot 2 firmware that was supposed to allow the IIc to function as a simple terminal (with a modem attached to that port). The previous version of the IIc ROM had been assembled with a couple of wrong addresses in the code, and the terminal mode produced garbage. Few people used this feature, so it was not noticeable to most users, and the corrected ROM chip was therefore not as quickly available as the original Memory Expansion upgrade.

NOTES

<1> Rose, Frank. WEST OF EDEN: THE END OF INNOCENCE AT APPLE COMPUTER, 1989, p. 48.
<2> Rose, Frank. WEST OF EDEN: THE END OF INNOCENCE AT APPLE COMPUTER, 1989, pp. 110-112.
<3> Hogan, Thom. "Apple: The First Ten Years", A+ MAGAZINE, Jan 1987, p. 45.
<4> Williams, Gregg. "'C' Is For Crunch", BYTE, Dec 1984, pp. A75-A78, A121.
<5> Little, Gary. INSIDE THE APPLE //C, 1985, pp. 1-7.
<6> Weishaar, Tom. "Miscellanea", OPEN-APPLE, Aug 1985, pp. 1.61.
<7> Durkee, David. "Marketalk Reviews", SOFTALK, Jun 1984, p. 120.
<8> Baum, Peter. "Expanding The Unexpandable IIc", SOFTALK, Jun 1984, pp. 95-97.
<9> ———. "Preface: The Apple IIc Family", APPLE IIC TECHNICAL REFERENCE MANUAL, 1984, 1986, pp. xxiii-xxv.
<10> ———. APPLE IIC MEMORY EXPANSION CARD OWNER'S GUIDE, 1986, pp. 2-4.

(PART 9 - DISK EVOLUTION / THE APPLE IIC PLUS)
ADVANCES IN APPLE II DISK STORAGE

Since Steve Wozniak's Disk II floppy drive changed the Apple II from a hobbyist toy to a serious home and business computer in the late 1970's, the progress of disk

storage has been slow for the Apple II series. In 1978, the year the Disk II was released, Mike Scott (Apple's president) and Randy Wigginton were asked at a user group meeting whether they were going to go to the larger capacity eight-inch floppy drives (which had been around before the 5.25 floppy drives). They answered that no, the Apple II was not going in that direction, but felt it might get a hard disk by 1979 or 1980, and possibly earlier than that a double sided, double density 5.25 disk with 500K per disk.<1> Of course, this never did happen; as we saw in part 7 of this historical overview, the Apple III project began to overtake the hearts and minds of Apple executives by 1979, and anything newer, bigger, or better was reserved for that machine.

As a result, DOS 3.2 and 3.3 was hard-coded to work specifically with the Disk II and its 143K of available storage, and never enhanced to easily access larger capacity drives. (Later, when we examine the evolution of Apple II DOS, we will see that it was possible from the beginning for DOS 3.2 and 3.3 to access up to 400K per disk in its catalog structure; however, the low-level disk access routines built-in to DOS were ONLY for the Disk II). So what changes DID occur in Apple II disk storage? Between 1978, when Apple released their original Shugart 5.25 inch floppy drives, and 1984, nothing much changed. Third party company produced patches that modified DOS 3.2 (and later DOS 3.3) to work with larger drives; from eight-inch floppy drives to hard disks (a whole 10 megabytes for only $5,350 from Corvus!<2>) to other various short-lived innovations, all made to try to end the "floppy shuffle". (One of the more interesting ones put five floppy disks into a cartridge, and through software made them appear to the computer as one large disk drive). Eventually Apple decided that the aging Disk II mechanism needed a face lift, and they introduced in the DuoDisk in May of 1984. This was essentially two Disk II drives in a single cabinet, with a special controller card.

The drive mechanism was improved to better read half-tracks on disks (which some copy-protected software used), and at $795 was priced to be less expensive than buying two of the older Disk II drives with a controller card.<3> The most important advantage of this new design was an elimination of the "fried disk drive" problem that happened constantly with the older design. The old Disk II controller had two connectors, one for each Disk II drive that could be connected. The problem was the in the design of the connector; like the game paddle plugs for the original Apple II and II Plus, the plugs for the Disk II drives were simply a series of pins that had to be properly aligned for the drive to function (similar to the delicate pins on a computer chip). If you tried to attach the plug in such a way as to accidentally shift the pins over by one, it would burn out the motor on the disk drive, requiring a trip for repairs to the local Apple dealer. The new DuoDisk design made connection of the disk mechanism to the controller fool-proof. With the release of the Apple IIc in April 1984 came an external Disk II drive that was designed to plug into the new disk port in the back of the IIc, and was the same color and design as the IIc case.

The Disk IIc was specific to the Apple IIc and could not be used with any older version Apple II, since it used a new, unique connector. However, since it was more expensive than a used Disk II drive, many users found out how to make a conversion cable to connect the older drive to the disk port; some even went the other direction and found ways to connect the new drive to the older Disk II controller cards for the II Plus and IIe. The next small evolutionary step in disk storage technology for the Apple

II was introduced in June 1985, with the release of the UniDisk 5.25. This drive was designed with the same appearance as the DuoDisk, but was a single 5.25 drive. It was also designed to allow one drive to be "daisy-chained" to another (one disk could plug into the back of another, forming a "chain"), instead of the older method of connecting each drive separately to the disk controller card. Its beige color was designed to match the original Apple IIe.<4>,<5> The last version of the Disk II was called the Apple 5.25 drive. It was identical to the UniDisk 5.25 drive, except for its case, which was designed in the platinum color to match the Apple IIGS and the platinum IIe. The connector it used allowed it to also be connected in a daisy-chain fashion.<5>

NOW A WORD FROM OUR SPONSOR: BASICS OF DISK STORAGE

Let's diverge for a moment from discussing specific Apple disk products and turn to a description on how the data are stored on a disk. There are two important concepts that you need to understand to see why some methods of data storage are "faster" than other methods. The first concept is the physical data layout on the disk, and the second concept is the "logical" data layout. The physical layout of data on a disk is important to the hardware of the disk drive. If the computer tells the disk drive to retrieve data from the disk, it has to be able to tell the drive exactly WHERE on the disk surface that data are stored. Most disk drives in use today (and when Steve Wozniak designed the original Disk II) store data on disks that are round, magnetically coated pieces of plastic that spin within a protective sleeve. The older 5.25 inch and 8 inch disks were "floppy" disks because they used a flexible protective sleeve (unlike the older yet but larger capacity "hard" or fixed disks, which usually could not be removed).

The newer 3.5 inch disks are also made of the same magnetically coated plastic, but their protective sleeve is a hard shell. Within its sleeve the thin plastic disk spins around rapidly while the disk drive motor is on. When a disk is formatted, certain addresses are written to the disk surface in a pattern that is known to the program (the disk operating system) used by the computer controlling the disk drive. Most computers divide the disk surface up into concentric rings (called "tracks"), and each track is divided up into segments called sectors or blocks. Each segment holds a specific number of bytes of data; for the Apple II, this has been either 256 bytes (sectors on 5.25 disks) or 512 bytes (blocks on newer disk devices). The number of sectors or blocks per track differs, depending on the device in question; what is important is that the disk operating system knows how to get to the right block when a request is made of it.

The second concept, that of the "logical" layout of the disk, has to do with the way in which the disk operating system organizes the physical blocks on each track. Imagine a phonograph record on a turntable (some of you still own those, don't you?) It physically resembles a floppy disk; it is just larger in size and is not "floppy". Mentally take a white marking pen and draw lines through the center of the record, across the entire surface from side to side, making the record resemble a pizza that has been cut up into wedges. Now draw a series of concentric circles, from the outside of the record down to the center. Each ring will, of course, be smaller than the previous ring. The rings you have drawn represent "tracks" on our simulated floppy disk, and the lines running through the center of the record represent the division of each track into blocks.

Suppose we drew enough lines to divide the record up into twelve "pieces" (of pizza). That means that each "track" has twelve "blocks". Now that you have your disk divided up (you just "formatted" it!), let's store some data on it. Numbering each "block" from one to twelve (like the numbers on a clock), let's put a checker into each block on the first (outermost) "track" (yes, a checker. You know—from the game?) Repeat the process on the second track, then the third, and so on, as far as you can go. Eventually you won't be able to fit checkers into the blocks, because they will get too small. (This points out one of the limits of floppy disks; at some point the available space on the disk becomes so small it is unusable.

A standard 5.25 disk for the Apple II can have anywhere from 35 to 40 tracks (Apple has always supported only 35 tracks), while the 3.5 disk has 80 tracks. The checkers we have put in the "blocks" on this disk have also been labelled, but with the letters "A" through "L" for the first track, and "M" through "X" for the second track, and so on. Turn on the record player. If you hold your hand over one spot on the first track on the record, you can see the lettered checkers as they move past. As it goes by, grab the "A" checker, then the "B" checker, and so on. Likely, after picking up checker "A" (on block 1), you had to wait for an entire rotation of the record before "B" comes by on block 2. The same goes for "C", "D", and so on. In computer terms, the "interleave" on this disk is 1 to 1 (written as 1:1). If you were EXTREMELY fast, you could pick up "A", "B", "C", etc. as quickly as they went by, without having to wait for the next revolution of the record. While few of us would be that fast, many of us could pick up a checker after about four went by that we didn't need. "Reload" your data on this disk, this time putting checker "A" on block 1, then checker "B" on block 5, checker "C" on block 9, checker "D" on block 2, check "E" on block 6, and so on. Now, as the record spins, you might be able to pick up "A", "B", "C", and so on without having to wait for the next revolution of the record. This would be (approximately) a 4:1 interleave. With this "logical" layout, you can pickup (load) checkers from the disk, and replace (store) checkers on the disk more efficiently. If your hands are still not fast enough, you may need to increase the interleave to 6:1 or even 8:1. If your hands are faster, you could possibly use a 3:1 or 2:1 interleave. This is roughly what happens with disk access.

A disk device and operating system that is extremely quick about processing the data it reads off a disk can have a short interleave (1:1 or 2:1). A slower disk device or operating system may need to use a 4:1 or higher interleave to work most efficiently. One last note: Because a track on a disk contains a continuous stream of data bits, Apple drives were designed from the beginning to use "self-synchronization" to be able to tell one byte from the next. This continuous series of bits would be similar to having a paragraph of text with no spaces between words. If a sentence read "GODISNOWHERE", does it mean "GOD IS NOWHERE" or "GOD IS NOW HERE"? Some method is needed to let the computer doing the reading know where the "spaces" between bytes exists. I won't go into detail on exactly how this is carried out, but suffice it to say that some bytes on the disk are reserved for this decoding process, and so the true data bytes are specially encoded to not be mistaken for the self-sync bytes. The process of decoding these "raw" data bytes is called de-nibblization, and translates about 700 of the raw bytes read directly from the disk into 512 true data bytes. This is another part of the overhead necessary when reading from or writing to the disk; it would be similar to having to draw something

on each checker with a marker as it was removed from the spinning record described above.

THE UNIDISK 3.5 AND APPLE 3.5

The first new disk drive that Apple released after the original Disk II was a 400K, single-sided 3.5 inch drive for the original Macintosh. Then, in September 1985 Apple finally released a similar drive for the Apple II series, one that was not simply a cosmetic improvement of the original Disk II drive. The UniDisk 3.5 drive was a double-sided version of the Mac drive, and could hold 800K of data. The only connection that this new drive had with the original 5.25 drives was a chip used on its controller card; this IWM chip (for "Integrated Woz Machine") put the function of the original Disk II controller onto a single chip, plus the enhancements needed to operate this higher density drive.<4> Apple's design for the UniDisk 3.5 was unique, in that it used a modification to Sony's design that varied the speed of disk rotation, depending on which concentric track was being accessed.

This change made it possible for data to be packed compactly enough in the smaller inner tracks to gain an extra 80K beyond the 720K that was originally possible. The UniDisk was directly supported by the newer Apple IIc motherboards (as mentioned in the previous part of this History), but for the older Apple II's a special controller card was required. The UniDisk 3.5 was designed as an "intelligent" drive, and had a self-contained 65c02 processor and memory to temporarily store ("buffer") data being read from or written to the disk. This was necessary because of the slow 1 MHz speed of the 6502 processors in the Apple II; they could not keep up with the faster data transfer rates possible with the 3.5 disk mechanism, plus the overhead of de-nibblization. This extra processing did cut down the speed in the UniDisk data transfer rate, but compared to the older Disk II drives it seemed MUCH faster. With the release of the Apple IIGS in September 1986 came a new version of the 800K 3.5 drive called the Apple 3.5. This mechanism could be used on either a Mac or Apple II, fitting into the trend at Apple at making peripherals compatible between the two computers.

The major difference between this drive and the original UniDisk 3.5 was that it had been lobotomized to be a "dumb" drive. Gone was the internal 65c02 processor chip used in the UniDisk 3.5 (which made it an "intelligent" drive) and the ability of the drive to buffer its own read and write operations. The newer Apple 3.5 drive did away with the extra circuitry, leaving it to the computer to handle direct control of the drive. This could be done in the IIGS because of its faster 65816 microprocessor, which could keep up with the higher rate of data transfer. Recall the above discussion of interleave? The original UniDisk 3.5 worked best with an interleave of 4:1, but the Apple 3.5 used 2:1 interleave and could do disk reads and writes faster. Disks formatted with either drive were usable with the other one, but would be slower on the "foreign" drive.<5> Overall, Apple released four versions of 3.5 drives between 1984 and 1986. First was the 400K drive used on the original Macintosh, then the 800K UniDisk 3.5 (which wouldn't work on the Mac), then an 800K drive for the Mac (which wouldn't work on the Apple II), and finally the Apple 3.5 drive, which worked on the Apple IIGS and the Mac, but not the IIe and original IIc.<5>

THE APPLE IIC PLUS: HARDWARE

Recalibrating our special time-travel card to focus on the final 8-bit version of the Apple II, let's travel to mid-1987. It was at this time that someone at Apple decided

that the IIc needed to be upgraded. Shortly before July, three years after its original 1984 introduction, it was felt that the Apple IIc would benefit from the larger capacity Apple 3.5 drive as its internal drive. The primary intent was to make only this change, while leaving the rest of the IIc as it was. Trying to use the Apple 3.5 drive in the Apple IIc was certainly an engineering problem. As mentioned above, the 1 MHz 65c02 was simply not fast enough to take raw data off the Apple 3.5 drive, de-nibblize it into usable data, and pass it to the operating system. The "intelligent" 3.5 drive was designed in the first place for that very reason. To solve the problem, Apple contracted with an outside firm to design a special digital gate array that made it possible for the 1 MHz 65c02 to just barely keep up with the data transfer rate from the Apple 3.5 drive. In accomplishing this, it needed an extra 2K of static RAM space to de-nibblize the raw data from the 3.5 drive. This extra memory had to be available OUTSIDE the standard Apple IIe/IIc 128K RAM space, since there was simply not enough free memory available to spare even that little bit of space.

The code Apple engineers wrote to use the drive was SO tight that there were EXACTLY enough clock cycles to properly time things while controlling the drive. (Each assembly language instruction takes a certain number of clock cycles; these cycles have to be taken into account for timing-sensitive operations such as disk and serial port drivers). To support older Apple II software that came only on 5.25 disks, the disk port on the back was now changed to handle not only external 3.5 drives (either UniDisk 3.5 or Apple 3.5), but also up to TWO Apple 5.25 drives which could be chained together (the same drives used with the Apple IIGS). These could be chained together as could the 3.5 drives. The IIc Plus, then, could have three additional drives attached, in any mixture of Apple 3.5, UniDisk 3.5, or Apple 5.25 drives.<6> The IIc Plus design was not thought out completely from start to finish, however. After they did the work with the special gate array to make the original IIc architecture work properly, someone decided that it was not a good idea to release a 1 MHz computer in 1987. People want speed, they reasoned; look at the world of the IBM PC and its clones, where each year faster and faster models are released. They decided then to retrofit the new IIc with a faster 4 MHz version of the 65c02. That change, had it been done from the start, would have made engineering the internal 3.5 drive simpler; they could have just used the processor at 4 MHz for 3.5 drive access, and then used the true system speed (as selected by the user) for all other functions.

The complicated gate array would not have been necessary. But, since the faster speed was added as an afterthought, and the project was under a tight schedule, the gate array design was not changed. To accomplish the faster processor speed for the IIc Plus, Apple went to another outside firm, Zip Technologies. This company had already marketed an accelerator, the Zip Chip, that was popular as an add-on product for existing Apple II computers. Users could simply remove the 6502 or 65c02 chip in their computer, replace it with the special Zip Chip, and suddenly they had a computer that ran up to four times as fast. Apple licensed this technology from Zip, but engineers balked at actually using the Zip Chip itself for the IIc Plus. Part of this was because of the size of the Zip Chip. The chip was shaped like a standard integrated circuit, but was thicker vertically than a basic 65c02. Inside the extra space was a fast 65c02 processor, plus some caching RAM, all squeezed into a space that would fit even into the original Apple IIc (where space was at a premium). (The

Zip Chip "cache" is a piece of RAM memory that is used to hold copies of system memory that the processor is frequently accessing. For instance, if a lot of graphics manipulation is being done by a program, the caching RAM would hold a copy of part of the graphics RAM, and could access it much faster than the standard RAM. This is part of what makes an after-market accelerator work). Zip had wanted Apple to buy their Zip Chip and simply use that product in the IIc Plus. Obviously, this would have been to Zip's advantage financially. However, the thicker vertical size of the Chip made testing the completed computer more difficult, and it would be a problem to isolate product failures to the Zip Chip, instead of something else on the motherboard. By using a 4 MHz 65c02 and two 8K static RAM chips as separate components in the IIc Plus, Apple engineers could ensure that it would work and be available in a large enough volume for production.

When they were designing the IIc Plus, Zip Technologies could not guarantee they could provide reliable products in the volume Apple needed. The IIc Plus did not have the 12 VDC input on the back panel as did the earlier IIc's; instead, the power supply was built-in. This was not because it was necessarily a better design, as an internal power supply was actually less reliable ultimately than the external power supply. (It exposes the internal components to higher levels of heat over the lifetime of the product). But because many people had criticized Apple about the IIc external power supply (called a "brick on a leash" at Apple), that they had decided to make it internal on the IIc Plus as it was on all their other products. This change apparently did not cause any significant problems, as few people were actually trying to use the IIc as a "portable" computer (with a battery pack). The memory expansion slot on the IIc Plus was not compatible with the memory cards that Apple had produced for the older IIc. This was primarily a timing problem; it was not because the RAM chips in the memory card were not fast enough to keep up with the 4 MHz speed of the IIc Plus. (Older IIc users can use an Apple Memory Expansion card with an 8 MHz Zip Chip with no problems).

The IIc Plus also had an additional connector at the opposite end of a memory card plugged into the expansion slot. Signals from port 2 were made available at that end, so third party companies could make a card that was a combination RAM card and internal modem. However, this never did come about (see below). Other changes in the IIc Plus included a slightly redesigned keyboard and mini-DIN-8 connectors on the back panel for its serial ports (to be more compatible with Apple's new Macintosh and IIGS keyboards). One interesting note: John Arkley, one of the engineers working on the project and a long-time Apple employee, campaigned long and hard to take things a step further. He wanted them to take an Apple IIGS motherboard, remove the slots, change the ROM to support only the internal "slots", and release a IIGS in a IIc case. He felt it would have made a great portable, non-expandable IIGS, but could not get anyone who could approve the plan to get interested in the idea.

THE APPLE IIC PLUS: FIRMWARE

The IIc Plus ROM was called revision 5 (the previous Revised Memory Expansion IIc was labelled as revision 4). The main changes present were the ones that supported the internal Apple 3.5 drive. Firmware on the new IIc was not any larger than the 32K on the previous models, but it did use the entire space (the previous IIc didn't use the last 8K available in the ROM). One minor bug that slipped by in the IIc Plus firmware was an inability to deal with 400K

(single-sided) 3.5 disks. There were few commercial software packages that came on such disks, however.<7>,<8>

THE APPLE IIC PLUS: INTRODUCTION

In September 1988 the Apple IIc Plus was introduced to considerably less fanfare than the original IIc was in April 1984. There were no promises of "Apple II Forever" this time; instead, it warranted little more than a press release in various Apple II magazines of the time. Its selling price was $675 (or $1,099 with a color monitor). This was remarkable, considering that the original Apple IIc WITH-OUT a monitor sold for nearly double the price ($1,295) and had far less capacity and power than this new version. Some models of the IIc Plus were even shipped with 256K of extra memory already added. It was faster than any other Apple II ever produced (including the 2.8 MHz IIGS), and was probably the finest 8-bit computer Apple ever produced.

THE APPLE IIC PLUS: LESS THAN A SUCCESS

Early on, the Apple IIc Plus was a big seller, and by January 1989 it was above forecasted sales levels. However, the biggest hurdle that the IIc Plus had to overcome was not the external marketplace, but rather the internal market opinions at Apple Computer, Inc. Since Macintosh-mania was still in full swing at Apple, and that younger brother of the Apple II was getting most of the attention from management, the IIc Plus (as well as the IIGS) suffered. It was not because of a lack of capability, but primarily from failure to thrive due to inadequate home nutrition, so to speak. Also, the IIc Plus had the same problem as the original Apple IIc; customers seemed to want the IIe with its slots, or the greater power of the IIGS.

There were some products that were designed by third-party developers for both the IIc and IIc Plus that never made it to the market for various reasons. Applied Ingenuity (later known as Ingenuity, Inc) had two products that would have markedly increased the portability of the IIc/IIc Plus. One was an internal hard disk they called "CDrive", which would have replaced the Apple IIc or IIc Plus internal floppy disk drive (converting it into an external floppy drive). Even more unique was "CKeeper", which was a multi-function card with many features. It could hold up to 1.25 MB of extra RAM; it had a clock/calendar chip that was ProDOS compatible; it had firmware routines to support dumping text or graphics screens to the printer; it could function as a built-in assembly language program debugger; and best of all, a feature called RAMSaver, which maintained power to the RAM chips during a power failure or if the power switch was turned off. Both of these products never saw the light of day, primarily because the company went out of business before they could be finished.<9>

Chinook Technologies actually finished design on an internal modem for the IIc Plus, but never released it. This card, 1.5 by 6 inches in size, would have mounted inside the disk drive shield. It connected to a small box attached to the outside of the IIc case, where there were cut-outs provided by Apple for connection of an "anti-theft" cable. This external box had phone jacks for the phone line and a telephone, just like most external modems. Undoubtably it never was released because of Apple's indifference towards the IIc Plus.<10> With inadequate support by Apple marketing, third-party hardware and software developers had little motivation in designing any new products for the IIc Plus. Therefore, no unique products ever emerged on the market to take advantage of its features. Finally, in

September of 1990 the IIc Plus was discontinued by Apple, leaving the platinum Apple IIe and the Apple IIGS as the remaining bearers of Wozniak's legacy.

NOTES
<1> Thyng, Mike. "Apple Source", PEEKING AT CALL-A.P.P.L.E., VOL. 1, 1978, pp. 7-8.
<2> ——. ——, APPLE ORCHARD, VOL. 1, NO. 1., Mar-Apr 1980, various.
<3> ——. "Tomorrow's Apples Today", CALL-A.P.P.L.E., May 1984, p. 78.
<4> ——. "The Marketplace", CALL-A.P.P.L.E., Jul 1985, p. 49.
<5> Baum, Peter and Allen. "Speaking Of Hardware", CALL-A.P.P.L.E., Oct 1987, pp. 30-34, 51.
<6> Weishaar, Tom. "Apple rediscovers the Apple II", OPEN-APPLE, Nov 198, p. 4.73.
<7> Weishaar, Tom. "Ask Uncle DOS", OPEN-APPLE, Jan 1989, p. 4.91.
<8> Weishaar, Tom. "Miscellanea", OPEN-APPLE, May 1989, p. 5.27.
<9> ——. "Ingenuity News", II AT WORK, Vol. 2, No. 1, Spring 1990, p. 30.
<10> Hoover, Tom. (personal mail), GEnie, E-MAIL, Nov 1991.

(PART 10 — THE APPLE IIGS)
THE APPLE II EVOLVES

While the capabilities of the Apple II slowly advanced as it changed from the II up through the IIc, the one thing that remained essentially unchanged was the 6502 microprocessor that controlled it. Even though the 65c02 had more commands than the 6502, as an 8-bit processor it was inherently limited to directly addressing no more than 64K of memory at one time. (As an 8-bit processor, the 6502 could handle only 8 bits, or one byte at a time. However, its address bus was 16 bits wide, which made for a maximum address of 1111 1111 1111 1111 in binary, $FFFF in hexadecimal, or 65535 in decimal. If you divide 65536 bytes by 1024 bytes per "K", you get 64K as the largest memory size). When Wozniak designed it, 64K was considered to be a massive amount of memory, even for some mainframe computers. (For example, the old mainframe on which I learned programming during college back in 1975 was a ten-year-old IBM 1130 with 8K of memory; this was used for both the operating system AND user programs!) Most hackers of the time would not have known what to DO with four megabytes of memory, even if it had been possible (or affordable) to install that much. Consequently, programs of the day were compact, efficient, and primarily text-based.

The non-Apple II computer world had developed and advanced, and Apple grudgingly allowed the Apple II to make its small, incremental advances. Occasionally, efforts were made within Apple to make a more powerful Apple II, but the lure of "better" computers always turned the attention of management away from allowing such a project to actually make any progress. First the Apple III, then Lisa, and finally Macintosh swallowed the research and development dollars that Apple's cash cow, the Apple II, continued to produce. The latter two computers were based around the 16-bit Motorola 68000 microprocessor, which had the capability to address far more than 64K of memory. The Apple II could make use of more memory only through complicated switching schemes (switching between separate 64K banks). Although "Mac-envy" hit many Apple II enthusiasts both inside and outside of Apple, causing them to move away from the II, there were

still many others who continued to press for more power from the II. Eventually, a company called Western Design Center revealed plans to produce a new microprocessor called the 65816. This chip would have all of the assembly language opcodes (commands) of the 65c02 through an "emulation" mode. However, it would be a true 16-bit processor, with the ability handle 16 bits (two bytes) at a time and to address larger amounts of continuous memory. The address bus was enlarged from 16 to 24 bits, making the 65816 capable of addressing 256 times more memory, or 16 megabytes. The power to make a better Apple II was finally available.

THE RETURN OF WOZNIAK

Back in early 1981, Steve Wozniak was involved with several projects at Apple. He had helped write some fast math routines for a spreadsheet product that Apple had planned to release in competition with Visicalc. Also, Steve Jobs had managed to convince Wozniak to participate with his fledgling Macintosh project. Then, in early February, Wozniak's private plane crashed. He was injured with a concussion that temporarily made it impossible to form new memories. He could not recall that he had an accident; he did not remember playing games with his computer in the hospital; he did not remember who visited him earlier in the day. When he finally did recover from the concussion, he decided it was time to take a leave of absence from Apple. Wozniak married, and returned to college at Berkley under the name "Rocky Clark" (a combination of his dog's name and his wife's maiden name). He decided he wanted to finally graduate, and get his degree in electrical engineering and computer science. When he was done with that, he formed a corporation called "UNUSON" (which stood for "Unite Us In Song") to produce educational computer materials, wanting to make computers easier for students to use. He also decided use UNUSON to sponsor a couple of rock music events, and called them the "US Festival".[1] Held on Labor Day weekend in 1982 and 1983, these music and technology extravaganzas were invigorating for Wozniak, but he lost a bundle of money on both occasions.

Though nowhere near drying up the value of his Apple Computer stock, he decided that he was ready to return to work. In June of 1983, Wozniak entered the building on the Apple campus where the Apple II division was housed and asked for something to do.

THE APPLE IIX

When Wozniak returned, he discovered the latest of the Apple II modernization projects, which was code-named "IIx". When he saw what the 65816 could do, he became excited about the potential of the new Apple II and immediately got involved. It was a tremendous boost in morale for the division to have their founder return to work. However, the IIx project was plagued by several problems. Western Design Center was late in delivering samples of the 65816 processor. First promised for November 1983, they finally arrived in February 1984—and didn't work. The second set that came three weeks later also failed. Other problems came out of the engineering mindset that still existed at Apple at the time. Recall that people there liked designing boxes that would do neat things, but there was not enough of a unified focus from above to pull things together. The marketing department wanted the IIx to have a co-processor slot to allow it to run different microprocessors. The code name of the project by this time was "Brooklyn" and "Golden Gate" (referring to the ability to make it a bridge between the Apple II and Macin-

tosh). The co-processor slot could allow the IIx to easily do what third party companies had done for the original Apple II with their Z-80 boards (which allowed them to run CP/M software). Co-processor boards considered were ones for the Motorola 68000 (the chip used in the Macintosh), and the Intel 8088 (used in the IBM PC). The IIx project got so bogged down in trying to become other computers, they forgot it was supposed to be an advanced Apple II. Politically it also had problems at Apple, because it was being aimed as a high-end business machine, which was where they wanted the Macintosh to go.[2],[3] Wozniak lost interest as things ran slower and slower, and eventually the project was dropped.

THE 16-BIT APPLE II RETURNS

When the IIx project was cancelled in March 1983, some of the Apple II engineers were assigned the task of reducing the cost of the Apple II. Engineers Dan Hillman and Jay Rickard managed to put almost the entire Apple II circuitry onto a single chip they called the Mega II. Meanwhile, after the "Apple II Forever" event that introduced the IIc, interest in the Apple II revived and sales were quite good. Management saw that sales of the open IIe were better than the sales of the closed IIc, so they were agreeable to the idea of another try at the 16-bit Apple II, possibly utilizing the Mega II chip. By late summer 1984 it was revived with the code name "Phoenix" (rising from the ashes of the IIx project).[3]

NOTES

[1] Miller, Jonathan. "The Life And Times Of Rocky Clark", SOFTALK, June 1982, pp. 141-144.
[2] Pinella, Paul. "In The Beginning: An Interview With Harvey Lehtman", APPLE IIGS: GRAPHICS AND SOUND, Fall/Winter 1986, pp. 38-44.
[3] Duprau, Jeanne, and Tyson, Molly. "The Making Of The Apple IIGS", A+ MAGAZINE, Nov 1986, pp. 57-74.
[4] Hogan, Thom. "Apple: The First Ten Years", A+ MAGAZINE, Jan 1987, p. 45.
[5] Regan, Joe. A2PRO ROUNDTABLE, Oct 1991, Category 16, Topic 2.
[6] Williams, Gregg. "The Apple IIGS", BYTE, Oct 1986, pp. 84-98.
[7] Nolan, Sean. "GS Memory Cards Compared", CALL-A.P.P.L.E., Aug 1987, pp. 10-17.

Steven Weyrich	é

Zonker Software
2715 N. 112th St.
Omaha, NE 68164-36666
(402) 498-0246

The Nibbler Speaks

❏ The Apple II world has been dying a slow death for some two years now, accelerated of course by the unique efforts of Apple UK. I have just heard that yet another limb has dropped off the dying corpse. Cirtech has decided that they will no longer be supplying Apple products. It is just no longer worth their while to bother making them. This is very sad news for me as I regarded the innovative products that John Robertson designed to be better in many cases than the over engineered equivalents from the States. I am sure that most of us have at least one piece of yellow Cirtech board somewhere in one of our computers. Our thanks must go to all that John did for the Apple II. I hope he is equally successful in making products for those other unmentionable computers out there in techno land.

❏ Another old friend in the Apple II world has stopped supplying parts. Eric Sausse has found that it just was no longer worth holding onto stocks of Apple II boards and hardware. He has passed a great deal of this on to Alan Finn at ClockTower. Our thanks also go to Eric for his stalwart support over the years. Eric is still in business, but he now only supplies Mac and PC bits and pieces. Contact Eric on ░░░░░░░░░.

❏ Alan Finn has just moved from his base in Crouch End to a new location in the country. His new address is ClockTower, Little Hadham, Hertfordshire. Tel: 0279 771038.

❏ Talking about such things leads me back to a subject which keeps coming up. The transportation of files from one operating system to another. There are many ways to do this from a direct hard wired link and two comms programs to a file translation program on one of the two computers.

Every Macintosh comes with a copy of Apple File Exchange. This now rather clunky program will convert files back and forth from MS-DOS disks to the Mac as well as handling ProDOS disks as well. A better way to read and write MS-DOS disks is by using a proprietary program like Access-PC or DOS Mounter. These neatly show an MS-DOS disk on the desktop along with all the other disk icons. It is then a simple matter to drag the files in each direction.

Another way of doing a transfer is to run SoftPC which actually emulates a PC on the Mac. Complete with whirr and clunk when you start up! SoftPC allows you to create pseudo MS-DOS hard disks and to copy files into a Mac folder.

I have just come across a new way of doing all of this, and more interestingly, to control a PC remotely from a Mac.

RunPC is a suite of programs and utilities to marry up a Mac and a PC in many different ways. The kit comes complete with disks for the PC and the Mac and a cable to connect the two together.

At its simplest the MountPC module of Software Bridge/Mac allows you to mount an MS-DOS disk on the Mac desktop and copy files from it into the Mac environment. It will not allow you to copy files the other way however. The Software Bridge/Mac is a suite of filters running from a program similar to Apple File Exchange. Files from many PC application formats can then be successfully translated into the Mac environment.

The more interesting part of the RunPC package are a suite of programs to install on the Mac and the PC. RunPC/Network is installed on the Mac and PC. The two can then be connected together with the supplied cable. An alternative version of the program RunPC/Remote allows you to connect the two computers through a modem at either end.

Once the software has been installed and started up, you can run and control the PC from the Mac display. A window opens and you are sitting in front of a PC computer! Most of the simple programs I tried all worked fine. A slight delay in operating sped was noticed as the screen updated itself. The manual warns you that although CGA, EGA, VGA and MCGA are supported there will be some programs that will not run. These are programs that directly address the PC's hardware in some way.

You can also transfer files directly from the PC by the same File Exchange type interface. There is the ability also to send messages directly to screen on the two computers and password protection, session record and playback and many other features.

The complete RunPC package may not be the answer to all your Mac to PC transfer needs, but it may well be able to do what you want. The combined RunPC package is also much cheaper than assembling separately all these features from software from other sources.

Run PC/Network licensed for 1 PC and 10 Macs costs $445 retail. RunPC/Remote costs $219 and Software Bridge/Mac costs $159. For further details or to purchase a copy, contact your Apple dealer or direct to:

Argosy Software Inc.
113 Spring Street
5th Floor
New York
NY 10012
Tel: +01-212-274-1199
Fax: +01-212-431-6567

❏ What with Newtons falling on us next year, and the joint projects under way between Apple and Big Blue, things are very different than they were thirteen years ago when I first bought my Apple II and BASUG was started. It looks very much as though Apple2000 will not be able to keep going very much longer with the services they have provided for all that time. If you are not able to contact a local group directly, I would strongly recommend getting a modem connected to your computer. TABBS is a way of Apple II people keeping touch here in the UK, and Ewen has promised to keep TABBS going for as long as he can. There is probably the best collection of Apple software in the UK sitting on there waiting to be downloaded.

Once you have a modem, you can also connect to Compuserve in the States. In the States there are hundreds of other Apple II enthusiasts who you can chat to, air problems and just plain enthuse with.

The Nibbler

Apple 2000 presents....

FUN + GAMES

Welcome to the Fun and Games section of Apple 2000 Magazine

David has written an article discussing the merits of of role playing with a computer versus the advantages of playing either with or against a human opponent. For those of you who would like both why not check out some of the games on Compuserve where you can pit your wits against human opponents in a computer environment. Of course a modem is necessary for this sort of thing but if you do have one and are a real enthusiast for game playing then this would seem worth taking a look at. Expensive though, I should imagine!! David was talking about D&D games but you aren't restricted to that on CIS as there are many board games which can be played in this fashion, chess of course being a game that has long been played by people who may well live on the other side of the globe from each other. All this came to mind the other day when I noticed that the Apple II forum on CIS was organising a golf tournament of Mean 18 (the Apple IIGS version). By the time you read this I am sure it will be too late to join in so I'm not giving details but I understand that this is an annual affair so why not make a note in your long-term diary so that you don't miss it next year. E.E.L.

Some brickbats and some bouquets... There are some excellent games with beautiful graphics and sounds which are produced for the IIGS. I am thinking primarily of those written by the French who seem to have a positive genius for getting the best out of the GS. Why do they seem to relish using those words of Anglo-Saxon origin euphemistically known as four-letter words? (Don't they have any Gallic ones?) These tend to occur in the titles and acknowledgments. You as an adult may not be offended by them but given that these games, usually arcade ones, are played and greatly enjoyed by children, including quite young ones, then many parents would prefer these words not to appear. Indeed some adults are also offended and my mother certainly was. This meant a game that I'm sure she and her grandchildren would have liked had to be removed when I gave her my IIGS.

InLine however never offend and in fact are a company producing games specially written for the Mac (no nasty porting from other machine formats here) which are everything a parent could possibly wish for. None of the games, not even the action ones, contain any violence and most certainly no offending words. The games are often educational but this doesn't detract in any way from the playability and enjoyability of them so those of you who equate educational games with dullness (none of our readers, surely?) can rest assured they are worth buying. The company is also one of the friendliest and most helpful to be found. We have already reviewed some of their games but they have sent us their whole range and we will be reviewing them all in due course. E.E.L.

KEY

⚔️	*Adventure*
👾	*Arcade*
♟️	*Board*
🎲	*Puzzle*
⛳	*Simulation*

Columns GS is a great Tetris style game for the IIGS (see article above though) but wouldn't run under System 6 until all my Inits and DAs had been removed. There is also a IIe version of Columns but written by different authors. E.E.L.

Let me recommend a couple of shareware games, namely Storm (a version of Tempest) and Diamonds which is an Arkanoid style game.

Storm is a shoot'em up game but played on some unusual fields and there is comprehensive documentation available which tells you how to modify the parameters of the game as long as you don't mind using ResEdit to do so.

Diamonds is in some ways even better than Arkanoid but to run it you must have a 13" screen and 256 colours. Hopefully we can review these shareware games in another issue. E.E.L.

CONTENTS

Spaceship Warlock

Billed as the first ever "interactive CD ROM adventure", this game has received a lot of publicity. **Peter Kemp** gives it a spin...

What you're going to need.

This is a game that pushes hardware requirements to the limit of what's lying around the average home:

- a CD-ROM player. (And the snappier the access time, the better.)
- real processing power. This isn't a game for wimpy machines — the Plus and Classics are non-starters (since you need 8 bit colour) and LCs are out of the running unless they've got the video RAM extension (otherwise, the game grinds to a halt as it does a massive number of colour coversions from 8 bit to 4 bit.). Even then, the LC will need a 13 inch monitor for 640 * 480 colour as 512 by 380 doesn't cover all the "hot spots" — of which more anon. (Cheapskates like me use the Apple 12 inch monochrome display, since this offers 640 * 480 with 256 greyscales...)
- at least 6Mb of RAM to play under System 7. I have 4 Mb and this wasn't sufficient — I had to boot and play from a 6.07 floppy, which didn't do much for speed or smoothness of sound!
- at least 2 Mb of space free on your hard disk to hold the master application.

So I've got the hardware — what next?

In the simplest of terms, Spaceship Warlock is a graphical adventure game — but the graphics are like nothing you've seen before! We're not talking "hi-res", nor "super hi-res". The graphics in the game are state of the art, as one would expect from Mike Saenz, who's been working with the Macintosh for several

years. (And recognising that modulated square waves aren't really music, there's some *real* music — to take advantage of the CD-ROM's amazing capacity — and this is read into the machine as the occasion demands.)

Never mind the quantity — what about the quality?

Spaceship Warlock is not an adventure in the traditional sense of the word. Unlike normal adventures (such as Colossal Cave and its offspring) where the player has a (non)-linear series of puzzles to solve, in Spaceship Warlock the action is strictly linear — it's a bit like a maze with directions painted on the walls. There certainly are puzzles to be cracked but since there's little to pick up and carry round, the permutations of *which* does *what* are fairly limited.

There's a small amount of combat, which is limited to using the cursor as a zapping machine. In general, be polite to eveything?) you ryone (everykill — and don't have to thing (everyone?) you don't have to be polite to. Again, there are extended sequences where the cursor changes to a watch and the story ad-vances. Take-off from the home planet for example, takes fifteen seconds or so, during which the player simply watches (and, for the first couple of times, lets his jaw drop in admiration at the graphics).

Bad news...

The biggest problem is that the game doesn't pick up the cursor in a consistent manner. At the best of times, game speed is modest and since movement is exclusively by moving the cursor to the appropriate "hot spot" on the screen and clicking, slowness of response can be very frustrating. It's not clear whether the lack of response is the slowness of the game or whether it simply hasn't picked up the mouseclick. (This doesn't seem to be hardware based — it happens on my LC and a friend's CI.)

And there is at least one area where there is "room" missing from the database (ie one can see a route, but a dialogue box comes up saying "Can't find..." — so the game expects there to be a room!) Fortunately this doesn't stop one completing the game, but it suggests poor testing.

And good news...

It is possible to have a conversation with player characters. And I mean a *real* conversation — speech has been encoded on the CD and by asking the right sort of questions, one can get real spoken responses. And — once again — I have to say that the graphics are *stunning*!

Conclusions

My feelings are mixed. The best explanation I can give is that this game is the Macintosh equivalent of a coffee table book — rather expensive and full of great pictures. And once it's been looked at (and left around to impress the neighbours) it doesn't get read again. If you own a CD-ROM player and want to see how games of the future will look, then buy this game. But if you're an adventure player on a budget, then borrow the game instead — and spend your money on something more conventional.

My thanks to Elizabeth Littlewood, who lent me her personal copy of the game for review. (For a ridiculous length of time too, as I kept on showing it off to people!)

Chess Champion 2175

Terry Cymbalisty pushes his best pawn forward and looks across a chequered screen...

What you get

Chess Champion 2175 is, as the name suggests, a chess programme for the Mac. It's a *British* programme written originally for Atari STs, Amigas and MSDOS PCs and as such, the manual doesn't mention the Mac version — you get a single page insert covering Mac specifics together with two double density disks and a twenty four page booklet.

So what does it do?

Given that there are several chess programmes available for the Mac, separating one from the other comes down to comparing a list of features. In the case of Chess Champion, the list includes:

- a claimed ELO rating of over 2000 points, which corresponds to a Candidate Master. (A strong club player is around 1600 and the world champion about 2600 — the programme will even calculate your own ELO rating, if you're brave enough to ask!) You can choose the skill levels of the computer opponent. This is useful as your chess skills improve. You can either use the "weak opponent" option where you can choose one of ten levels from Orangutan to Gorilla! The other alternative is to use the "strong opponent" option where you can limit Chess Champion's time to play each move.
- a large (534K) library of opening moves, with the ability to add your own opening lines to the book. The programme tells you which opening is being played. Chess Champion will add moves it considers strong to its own opening library. A file named "Extra Book" is created with the player's consent.
- colour or monochrome graphics in either 2D or 3D perspective.
- chess pieces stored as MacPaint or standard PICT format files and as such are easily editable by the user.
- the ability to print a game (in algebraic notation), together with the time for each move (tournament clocks are available, adding to the true-life realism of the programme). While you can print the empty board in either colour or black and white, I used the shareware utility "Flash It" to capture screen shots with actual pieces on the board.
- as well as obeying all the "well known" rules, Chess Champion has a good understanding of some of the more subtle aspects of the game, such as drawing by repetition and underpromotion. Similarly, by convention, most chess programmes treat drawn positions as equal. A novel feature allows you to set draws as a loss, hence the programme will avoid draws at all costs. You can set draws as a win, with various permutations in between.
- allowing the player to enter moves from the keyboard (using algebraic notation) or the mouse. (And when using the mouse, double-clicking it will automatically move it if there is only one legal move available — otherwise, the player clicks on the required destination square.)
- the ability to set up particular positions (for problem solving) or to handicap an opponent (by removing the queen, for example!) After you've finished altering the the pieces, the programme will check the validity of the positions and then return to the game. The programme documentation lists ELO test positions (and provides solutions at the end of the manual.)

Operating requirements

Chess Champion needs at least a Mac Plus, System 4.1 and 1Mb of RAM for black and white operation (or 1.5Mb for colour operation) and consumes 1.3Mb on your hard disk. I have 4Mb of RAM in my Mac LC running System 7.0 and I found absolutely no problems (not a single bomb). The programme has a benign copy protection scheme — when the programme is first run from a hard disk, it asks you to type in a word from a specified line on a specified page of the manual (different every time I guess). This only happens once, but if the "installed" copy is copied to another disk, the programme recognises this fact and prompts for another word. As I say, this only happens the first time the programme is run. As such, I found this scheme preferable to other game programmes which either ask for a key disk every time they are run or install themselves in a strange manner on your hard disk — and need deinstalling if you run a hard disk defragmenter programme.

Personal Impressions

I was very impressed with Chess Champion. It compares most favourably with other chess programmes that I have owned for the Apple][and Atari ST. Its features are very extensive and would suit chess novices and intermediates like myself.

It doesn't have the gee-whiz features of "Battle Chess" with the animation and humour, but there again, Chess Champion is a far more serious programme with serious features.

It really gave me a good, challenging game.

I would rate it 5 out 5. It's available from all good software dealers at around £25.00.

HP DeskWriter (superb inkjet, now low price/Appletalk)	£350.00
HP DeskWriter C (now with colour capability)	£560.00
HP Laserjet series (Postscript and Localtalk)	from £1295.00
Kodak Diconix (perfect for PowerBooks)	£296.00
LabelWriter II (mini thermal printer produces sticky labels)	£199.00
LZR 960 (PostScript level 2, really quick)	£1595.00
LZR 1560 (PostScript level 2, A3 and A4)	£3995.00
Oki OL840 (PostScript laser printer at a great price)	£1495.00
QMS PS410 (PostScript laser printer)	£1795.00
Shinko A4 (high quality 300 dpi A4 colour printer)	£2995.00
Tektronix Phaser PXE (high quality colour)	£3795.00

PRINTER SOFTWARE

The Witch (driver and cable for serial dot matrix printers)	£55.00
Epson LQ (driver and cable for parallel dot matrix printers)	£79.00
PowerPrint (driver and cable for HP laser printers)	£125.00
Freedom of the Press ⑦ (PS interpreter for many printers)	£230.00
Freedom of the Press Light ⑦ (mono printers version)	£65.00
MacPalette (greatly improves colour ImageWriter output)	£45.00
MacLabel Pro (sophisticated label printing)	£99.00
ShadowWriter 2.0 ⑦ (networks most serial printers)	£50.00

DATA STORAGE

42 Mb external drive (Qisk)	£275.00
50 Mb external drive (La Cie)	£310.00
105 Mb external drive (La Cie)	£399.00
180 Mb external drive (Qisk)	£535.00
240 Mb external drive (La Cie)	£599.00
420 Mb external drive (Qisk)	£695.00
520 Mb external drive (Qisk)	£995.00
1300 Mb external drive (Qisk)	£1795.00
1700 Mb external drive (Qisk)	£2595.00
Hammer Drives (absolutely the fastest available)	from £475.00
Tape Backup 150 Mb (Qisk)	£595.00
DAT Tape Backup 2 Gb (D2)	£1695.00
Optical Drive 600 Mb (Panasonic)	£1995.00
Optical Floppy Disk Drive 128Mb (Panasonic)	£1025.00
CD ROM Drive (Hitachi or Toshiba)	£395.00
45 Mb Syquest Removable Drive (including cartridge)	£355.00
80 Mb Syquest Removable Drive (including cartridge)	£595.00
Syquest Removable 45 Mb Cartridge	£55.00
80 Mb Bernoulli Removable Drive	£725.00

MONITORS

14" 8 bit colour system for SE30	£495.00
Mobius A4 Classic/SE (030 accelerator)	£899.00
Mobius A4 LC/SE30	£728.00
Mobius Two Page Classic/SE (030 accelerator)	£999.00
Pro Nitron 19" Mono system	£925.00
Pro Nitron 19" Greyscale system	£1125.00
Pro Nitron Sony 20" 8 bit system	£2295.00
Pro Nitron Sony 20" 24 bit system	£2795.00
NEC MultiSync FG colour 14" to 21"	from £460.00
Panasonic Colour 14" (alternative to Apple 12" or 13")	£375.00
Radius Pivot	from £650.00
Radius Colour Pivot	from £1125.00
PowerPage 15" for Classics and PowerBooks	from £765.00
Supermac 19" 8 bit system	£1695.00
Supermac 19" 24 bit system	£2395.00
Venice 24 bit NuBus card (for Apple 13" monitor)	£245.00

PROGRAMMING

AppMaker ⑦ (powerful programming tool)	£225.00
Frontier ⑦ (allows "programming" of the Finder and more)	£195.00
Plus 2.0 (full colour alternative to HyperCard also for PC)	£325.00
ProGraph ⑦ (new OOPS programming tool)	£245.00
Prototyper (creates C code for Windows Menus Dialogs)	£195.00
QuickBasic (a little BASIC zinger from Microsoft)	£55.00
SmallTalk V ⑦ (best version of the definitive OOPS language)	£130.00
SuperCard (alternative to HyperCard has powerful language)	£210.00
Think C 5.0 ⑦ (PageMaker was written in this)	£125.00
Think Pascal 4.0 ⑦ (it probably could be rewritten in this)	£125.00
True Basic ⑦ (the original Basic language)	£69.00
TMON (debugger catches your Mac when your app crashes)	£98.00
ZBasic 5 ⑦ (heavyweight BASIC with good toolbox access)	£125.00

EDUCATION

UP TO 12 YEARS

Cosmic Osmo CD (brilliant kids adventure)	£59.00
KidsTime ⑦ (5 classic learning programs for the 3 to 7 year old)	£35.00
KidsMath ⑦ (takes kids from counting to applied arithmetic)	£35.00
KidPix ⑦ (wonderful paint prog with sounds)	£29.00
NumberMaze ⑦ (award winning arithmetic tutor)	£39.00
ReadingMaze ⑦ (essential reading skills)	£39.00
Spelunx ⑦ (voyage of discovery)	£29.00

FROM 10 YEARS UP

Visions ⑦ (detailed astrological horoscopes and charts)	£39.00
Canis ⑦ (info on dogs and how to rear them)	£25.00
Calculus ⑦ (intro course via a classic curriculum)	£59.00
EarthQuest ⑦ (heralds a new type of multi curricular learning)	£47.00
Eco Adventures ⑦ (environmentally aware adventure game)	£39.00
EuroStack 2.0 ⑦ (info gathering resource for Europe)	£55.00
LocationMaker UK ⑦ (county maps database shell)	£55.00
Geometry ⑦ (intro course via a classic curriculum)	£59.00

MacGlobe ⑦ (complete world info, maps. Essential)	£49.00
NumberMaze Decimals & Fractions ⑦ (helps older kids)	£39.00
Physics ⑦ (complete course in classic mechanics)	£59.00
Voyager Astronomy ⑦ (view the heavens on your Mac)	£85.00
VocabuLearn ⑦ (audiocassette/Mac based language tuition)	
French,Spanish,German,Japanese, Hebrew	each £42.00
Where in World is Carmen San Diego? ⑦ (geography based)	£31.00
Where in Europe is Carmen San Diego? ⑦ (geography based)	£31.00
Where in Time is Carmen San Diego? ⑦ (history based)	£31.00
Word Torture Language tutor:	
French,Spanish,German,Russian	each £39.00

Special low Education prices are available on some products, including Microsoft, Claris, Symantec and others to authorized educational establishments with Educational Purchase Orders.

UTILITIES & DA's

FILE & DISK MANAGEMENT

911 Utilities ⑦ (the pro's file & disk recovery tool)	£69.00
AutoDoubler ⑦ (automatic transparent file compression)	£59.00
Complete Undelete ⑦ (recover trashed documents)	£39.00
ClickChange ⑦ (interface customisation)	£47.00
Crash Barrier ⑦ (intercept crashes to save data)	£49.00
DiRectory ⑦ (brilliant floppy and/or hard drive file logger)	£59.00
Disk Express II ⑦ (speed up, unfragment hard drives)	£55.00
DiskDoubler ⑦ (file compaction to save space)	£59.00
Disk Top 4 ⑦ (powerful DA finder)	£69.00
File Director (9 essential DA's and Finder enhancement)	£75.00
Frontier ⑦ (allows "programming" of the Finder and more)	£195.00
HandOff II ⑦ (no more "application is busy or missing")	£69.00
Hard Disk Toolkit ⑦ (the best formatter and checker)	£115.00
Help! ⑦ (sorts out clashes and crashes)	£85.00
ImpressIt (software only compression from Radius)	£125.00
InitInfo ⑦ (book and stack about Init Clashes)	£29.00
InitPicker 2.0 ⑦ (choose startup Inits)	£35.00
MasterFinder ⑦ (time saving finder utility)	£55.00
Norton Utilities 2.0 ⑦ (new version now includes SUM)	£99.00
Now Utilities ⑦ (10 wonderful Inits & DA's. Essential)	£75.00
On Cue II ⑦ (launch apps and documents from menu bar)	£65.00
On Location ⑦ (lightning fast file location)	£85.00
Power Utilities ⑦ (Disk Express, Juggler, MultiDisk, more)	£79.00
Shortcut ⑦ (extra commands in open dialogue box)	£49.00
SilverLining ⑦ (popular disk formatting utility)	£99.00
SuperDisk ⑦ (file compression)	£59.00
SUM II ⑦ (essential utilities - special offer while stocks last) only £49.00	

SECURITY

A.M.E. (very sophisticated data security)	£195.00
DiskLock ⑦ (reasonably priced data file security)	£105.00
Empower I ⑦ (file & data security)	£120.00
Empower II ⑦ (sophisticated file & data security)	£225.00
FolderBolt ⑦ (lock up folders simply and effectively)	£65.00
MacSafe II ⑦ (file security)	£95.00
FileGuard ⑦ (data encryption)	£145.00
Nightwatch ⑦ (hard disk security)	£75.00
QuickLock (lock out prying eyes from your data)	£32.00

BACKUP & VIRUS PROTECTION

AutoSave ⑦ (saves your work at user determined intervals)	£29.00
Backmatic ⑦ (for those who hate backing up)	£55.00
DiskFit Pro ⑦ (reliable low cost backup)	£72.00
DiskTwin (constant HD duplication security)	£595.00
FastBack II ⑦ (very fast and compact)	£105.00
NightShift (sophisticated network backup)	£525.00
Redux ⑦ (best value backup program on the market)	£59.00
Retrospect ⑦ (most sophisticated archival backup)	£130.00
Retrospect Remote ⑦ (THE solution for network backup)	£225.00
SAM 3.0 ⑦ (Symantec's anti virus utility)	£69.00
Virex 3.6 ⑦ (best virus tracer & eradicator of all)	£49.00

PRODUCTIVITY ENHANCERS

After Dark 2.0 ⑦ (screen saver with many options)	£25.00
More After Dark ⑦ (25 great new screens)	£20.00
After Dark/More After Dark Bundle	£35.00
At Your Service ⑦ (animated and vocal "assistant")	£35.00
Calculator Constructor 2 ⑦ (create DA calculators)	£49.00
Calendar Maker ⑦ (customise calendars)	£39.00
DynoPage ⑦ (allows printing of anything to filofax paper)	£79.00
Exposure Pro ⑦ (screen dump utility with paint tools)	£82.00
First Things First ⑦ (alarms, reminders, to do's)	£45.00
Hyper DA II ⑦ (read HyperCard files from a DA)	£79.00
Master Juggler ⑦ (100's DA's & fonts bypassing F/DA Mover)	£35.00
Maxima ⑦ (access more than the 8Mb limit of RAM)	£85.00
MultiClip 2.0 ⑦ (multiple copies & pastes)	£65.00
Now Up-To-Date ⑦ (calendar and reminder system)	£59.00
QuickKeys 2.1 ⑦ (macro maker, time saver utility)	£99.00
QuickDex II ⑦ (lightning fast DA database. essential)	£35.00
SuperQuickDex ⑦ (with added great printing capabilities)	£55.00
Screenshot ⑦ (low cost full featured screen dump utility)	£35.00
Stepping Out 2 ⑦ (software big screen extender)	£59.00
Smart Alarms ⑦ (DA reminder/diary system)	£49.00
SmartScrap & Clipper ⑦ (enhanced scrapbook)	£49.00
Snooper ⑦ (hardware fault diagnosis for all Macs)	from £150.00
stopWatch 3.0 ⑦ (client & project time/activity monitoring)	£85.00
StuffIt DeLuxe ⑦ (premier file compression program available)	£69.00
Suitcase 2.0 ⑦ (new version manages 100's DA's & fonts)	£49.00
SuperSpool ⑦ (best ImageWriter spooler)	£50.00
SuperLaserSpool ⑦ (Laser & ImageWriter spooler)	£85.00
Talking Moose ⑦ (not a productivity enhancer)	£23.00
Tempo II (powerful macro maker)	£99.00

The Far Side Calendar ⑦ (diary with the cartoons)	£55.00
Tiles ⑦ (Finder enhancement, program launcher)	£59.00
WallPaper ⑦ (beautify the boring desktop)	£39.00
windoWatch ⑦ (logs time usage of windows)	£85.00

ENTERTAINMENT

KEY Works on – ✚ Plus, SE only. ➔ Plus, SE, II

✔ Plus, SE, II, CX and SE30. ➤ Colour Macs only

Many games do not work on the Ci, FX, Classic, SI, LC, Quadras and the new PowerBooks. Please enquire before ordering games to run on these machines

ARCADE

✔Aqua Blooper (fit pipes together before it floods)	£29.00
✔Armor Alley (helicopter shoot em up)	£36.00
➔Beyond Dark Castle (more of the classic game)	£31.00
✔Blade (arcade adventure kill or be killed)	£65.00
✔Crystal Quest 2 (Britain's favourite game)	£29.00
✚Dark Castle (the classic Mac game and still popular)	£31.00
✔Faces (from the Tetris people)	£24.00
✔Glider (fly a glider through eerie house, best new game)	£29.00
✔Harpoon (naval game)	£39.00
✔Indiana Jones (wonder what this one's about?)	£29.00
✔Mission Starlight (addictive space shoot-em-up)	£29.00
✔Mutant Beach (adventure type. great graphics)	£39.00
✔OIDS (addictive space shoot-em-up)	£25.00
✔Prince of Persia (brilliant animation graphic adventure)	£35.00
✔RoboSport (the thinking man's shoot-em-up)	£39.00
✔Sky Shadow (shoot 'em up from the Crystal Quest author)	£29.00
✔Spectre (brilliant tank battle game)	£35.00
✔Spectre LAN Pack (3 user pack for network battling)	£59.00
✔Splat'ers (paintball arcade and strategy game)	£39.00
✔Tetris (award winning colour Soviet game)	£24.00
✔Wordtris (Tetris with words)	£24.00
✔Welltris (3 Dimensional Tetris, could drive you insane)	£24.00

SIMULATIONS

✔The Cycles (excellent motorcycle racing sim)	£27.00
✔Falcon 2 (exciting & networkable flight simulator)	£34.00
✔Fast Break (exciting basketball game)	£29.00
✔Ferrari Grand Prix (formula one racing simulation)	£36.00
✔Fokker Triplane (World War One flight simulator)	£29.00
➤Hellcats (WWII F6F flight simulator, best graphics)	£39.00
✔Life and Death (be a doctor, perform actual operations)	£24.00
✔MacSki (get in shape for the slopes!)	£42.00
✔Microsoft Flight Simulator (long awaited new version)	£35.00
✔Mustang P51 (fighter plane simulation)	£39.00
✔Net Trek (multi player network space game)	£39.00
✔Patton Strikes Back (Battle of the Bulge)	£29.00
✔PGA Golf (far and away the best Golf game)	£27.00
✔Railroad Tycoon (run a Wild West railway company)	£27.00
✔Sim Ant (control an ant colony)	£29.00
✔Sim City (design and run your own city)	£32.00
➤Sim City Colour (design and run a colour city!)	£52.00
✔Sim Earth (design and run your own planet)	£34.00
✔Space Rogue (equivalent of Elite only better)	£27.00
✔Starlight (space thriller)	£29.00
✔Strategic Conquest (top war simulation)	£39.00
➤Tristan (the only Pinball game for the Mac)	£39.00
✔The Duel:Test Drive (race your Porsche round California)	£32.00
✔Universal Military Simulator (the classic war game)	£27.00
✔Vette (race a Corvette through San Francisco)	£34.00

STRATEGY

✚Ancient Art of War (Sun Tsu's high quality war simulation)	£26.00
✚Ancient Art of War at Sea (seafaring version of above)	£26.00
➔Balance of the Planet (save the environment and world)	£32.00
✔Darwins Dilemma (based on evolution)	£29.00
✔Guns & Butter (run your own country)	£27.00

ADVENTURES

✔Citadel (fantasy adventure)	£29.00
✔Mission Thunderbolt (huge graphic/text adventure)	£29.00
✔Pirates (swashbuckling graphic adventure)	£21.00
✔Spaceward Ho! (explore and colonise a galaxy!)	£49.00
✔3 in Three (puzzles and riddles from Cliff Johnson)	£29.00

BOARD GAMES

✔Battle Chess (animated and powerful game)	£25.00
✔Bridge (from novice to advanced playing levels)	£24.00
✔Casino Master (Roulette, Blackjack, Poker, Baccarat, Craps)	£34.00
✔Chess Champion (best Chess game now)	£25.00
✔Go Junior (award winning version of famous game)	£21.00
✔Go Master (stronger play and training modules)	£49.00
✔Ishido (award winning oriental Go/Mah Johng style)	£32.00
✔Shanghai II (new version of the famous game)	£25.00
✔Stratego (award winning classic war game)	£27.00
✔Tesserae (colour matching mind stretcher)	£29.00

BOOKS & TRAINING

Dr. Mac 2nd Edition	£20.95
PageMaker 4.0 Made Easy	£19.95
System 7.0 Book	£20.95
Using FileMaker Pro	£22.95
Using Microsoft Word 4	£20.95
Using Quark Xpress 3.0	£18.95

TRAINING

Personal Training ... 4 to 6 modules per app, each module £75.00 (audio cassette application training for: New Mac Users, Upgrading to System 7.0, PageMaker 4.2, Xpress 3.1, Works, Word 5.0, Excel 3.0, Persuasion, Illustrator, FreeHand, FileMaker, ClarisWorks and Lotus)

David Tointon replies to a letter from Jonathan Shippam, offering some help and encouragement...

Pagham
West Sussex

Dear Apple 2000,

I own a Macintosh LC 4/40 and am learning to play the electric guitar. Firstly, is there any software that can behave like a "Drum Box", which can be used to produce at least basic drum beats, but preferably which can be programmed? Secondly, what is the most suitable program to use to record music with different tracks kept separate?

Midi interfaces are fairly cheap, but can you explain how a guitar could be linked via one, can the microphone input be used instead? Can the LC produce stereo sound, if so how is the best way to link it to an amplifier? Please bear in mind that I have a fairly limited budget (student) although it is a waste of time getting something if it is not up to the job.

As far as Midi goes I really need to know more about your setup to go into much detail but I know of a program called MacDrums that deals with drum beats, although I am doubtful about compatibility, especially if you are using System 7. The other alternative would be to use a sequencer and a keyboard/sound module with percussion sounds, which would also produce reasonable results. In my opinion the best entry level sequencer around is EZVision (approx. £100) and it can be bought on its own or in the excellent EZMusic package (approx. £200) that comprises of: EZVision, Midi Translator (Midi Interface), The Book of Midi (HyperCard stack that is an Introduction to Midi), and Band in a Box (automated accompaniments). For the price this seems excellent. I'm not too knowledgeable about Midi guitars although I know you can buy guitar to Midi converters, but they cost a fair bit, unfortunately. I suppose you could use your mic to get some guitar out of your Mac, but I only know of one cheap Midi sequencer that allows the playing of recorded audio (such as you playing the guitar) 'over the top' of a Midi track. This application is called AudioTrax and costs about £179. However, it is not intended for professional results, so I would recommend that you get a decent sequencer and keyboard to use with Midi, and don't bother trying to connect your guitar at the moment, because although you could use AudioTrax, I don't think the results would be too great.

The LC cannot produce stereo sound, although it can drive stereo equipment by sending the same signal to both speakers. You can connect a Mac to a hi-fi's CD or Video auxiliary ports, using the adapter that has a single jack that can plug into the sound out port on one end, and 2 phono sockets on the other (you should have got this with your Mac). Then all you need is 2 phono leads (plug to plug) that you could connect from the adapter to the auxiliary ports in the hi-fi. If you wanted to plug it straight into a guitar amplifier, then you would just need a cable with a plug that would fit into your sound out (Mac) on one end and on the other end a plug that would fit into your amp. Sorry if I'm not being technical enough for you, but I'm not exactly 'into' electronics.

As an ex-GS owner, I often wish that the games for the GS were available for the Mac. Perhaps they are! Task Force (GS) is about the best game I have ever played, it had good sound and graphics and was excellent in almost every respect (except the time it took to load on a disk drive...). I have not seen anything like this advertised for the Mac. Test Drive II was quite amazing, apart from the jerky movement caused by the slow processor. I would have jumped at the chance of buying it for my Mac if I hadn't seen a screen shot of it in a magazine — the game was inside a window!!??!! I certainly didn't spend all that money on an LC with one of the benefits being higher screen resolution, to then buy a game which used probably even less pixels than it did on the GS. All the games I see advertised are sort of board games — and I got bored of them when I had my Apple IIc.

By the way, is Dungeon Master (by FTL) available for the Mac? On the GS it was perfect except for the lack of speed. What are joysticks rarely advertised for the Mac, most of the games I can think of would be ruined without one (and isn't it a bit silly having to unplug the mouse to use one?)

As far as I can see it I have a computer with even better graphics and sound capabilities, and fast enough to run games properly which nobody has bothered writing any decent games for. Even GS public domain games and demos use better graphics and sound than anything I've seen on a Mac (e.g. Space Harrier demo). It seems that software companies aren't providing the means for me to use the full capabilities of my computer, or maybe the companies that advertise in magazines or who publish catalogues do not stock much of what is available. I hope you can tell me something about this that proves me wrong!

I must admit, the state of Mac games isn't exactly awe-inspiring, although there are some decent games available. Most software on the Mac runs in a window, so you'll have to try and grin and bear it, although you can nearly always 'zoom' a window so that it fills your screen (failing that you could use ResEdit). I agree with your comment about Dungeon Master, it is indeed an excellent game, but as yet there is no Mac version, although FTL have released a different game for the Mac called OIDS, so I presume they have some interest in developing games for the Mac. Can anybody help Jonathan out, with some juicy rumours about a Mac version of Dungeon Master? You're right about joysticks being rarely advertised, probably it is because games are such a small part of the Mac software market. The only joysticks I know of are well over £50, but I'm sure it can't be that difficult to connect a standard games joystick (Amiga, ST type) to a SCSI or an ADB port. Does anybody know of an electronics expert who can do this? I agree with what you say about GS games being better than the Mac equivalents, despite the Mac's better graphics (although I think the GS sound chip is better than the Mac's).

The best game graphics and sound-wise around at the moment must be PGA Tour Golf, although I hear that Spectre is fairly good too. If you are looking for a good puzzle/simulation, why not try one of the Maxis series (SimCity, SimEarth, SimAnt) as all three of these are good, or you could try something by InLine Design (3 in Three, Mutant Beach) as these also seem to be highly spoken of.

Isn't it to be expected that Apple are changing the LC processor, now that all the real Apple supporters have already rushed out and bought the old model? I just hope Apple don't charge too much to swap the mother board. It should cost much less to move from an '020 to an '030 than it does from an '000 to '030 with the Classic (although I doubt it will cost less than the still-high price of £464).

Don't worry too much about the new LCII as Apple is not intending to remove the LC from its product line for some time yet (in the UK at least), and unless you need virtual memory, the LCII doesn't offer much of an improvement anyway!

Clue Master Detective

Magnifying glass in hand, Alastair Nisbet sets off in search of clues...

Why would anybody pay nearly £30 for a computer version of a board game costing a third of the price? That was one of the mysteries facing me as I pitted my little grey cells against the electronic genius of my Apple][e to unravel a murder investigation.

I've been a modest fan of the game "Cluedo" ever since I was knee-high to a deerstalker, but what's the point of playing a game against a computer which is deaf to your double bluff and innuendo? Actually — it's quite fun.

Starting off

The aim as you will remember is to work your way round the board, eliminating clues on the way, to establish the identity of the murderer, the location of the crime and the murder weapon.

The game comes on a single side of a 5.25in copy-protected ProDos disc — not a lot of code for your money in these days of huge programs — but I must say in some ways it is quite impressive. It only needs 64k and will happily run on a][+ — that's quite something for a comparatively new game.

There are fairly obviously no bells and whistles — no sound apart from the bleep as you move around the board and no super high res graphics, — but what the game does, it does rather well. Because the disk is copy protected, you can't unfortunately load to a hard disk. You have to cold boot the disk each time you play, which loads the whole game into memory after a title sequence in which a graphic of an outside view of manor house moves onto the screen. There's no great fanfare at the end, but a face (supposedly that of Sherlock Holmes) fills the screen with the words "Elementary my dear Alastair", should I ever be lucky enough to win! Half finished games can be saved onto a separate disc.

Fings ain't what they used to be

I'm afraid some of the old characters have changed a bit in this transatlantic version of Waddington's original game. The Rev Green for example has become plain Mr. Green, and there are four rum characters I had not heard of before: Madame Rose, Sgt. Gray, M. Brunette and Miss Peach. Nor do I remember some of the murder weapons. Revolver and lead piping yes, but poison, wrench and horseshoe?

I always thought the murder victim was supposed to be Dr. Black, but he has been rather cornily re-named Mr. Boddy, whose home, naturally, is Boddy Manor. As in the board game the idea is to throw the dice, move from room to room and eliminate suspects by making suggestions about the crime to your opponents, who must reveal a card from their hand showing the suspect, weapon or room suggested.

The house has been extended to include a trophy room, carriage house, gazebo, courtyard and fountain — after all it is supposed to be a manor house.

Moving around

You can either have a full screen view of the whole "board" in miniature, or a close up of a small section. In practice it's very quick and easy to move around the board — especially if you have a mouse, but not disastrous if you don't!

The dice tumble on screen and you click the mouse or press return to stop them, and then move your token across the board. If you pass a magnifying glass symbol, you can snoop one of an opponents' cards — they do the same to you. You decide before the game whether you want the computer to select the card to be shown after a suggestion is made — or for the player to choose. When the computer shows you your opponents' cards, other players must turn away while you click the mouse to turn over the card on screen.

One of the useful things about playing on the computer is that if you have a printer connected, you can print out your own detective's notebook at any time. If you ask it to, the computer automatically keeps a tally, both of all the moves, and of the cards you have been shown, which it enters in your private notes — very handy.

Beating the opposition

Thankfully you can still double bluff and suggest cards which you hold in your "hand" although I've got a sneaky suspicion about that computer. How is it he always knows exactly where to go and throws a high score while I am stuck on double one?

Up to ten people can play, either human or three levels of computer opponent. If you like, they can all be the computer and the machine will happily play itself for ages.

You can be incredibly selfish and play on your own against up to nine computer opponents, or your can gather your friends round the machine and play with a mixture of human and computer players.

I was hoping that the element of chance would help give me a bit of an edge against the computer, but it's a pretty shrewd opponent.

I haven't tried it yet but my next game plan is going to be to whiz round the board as quickly as possible to find the location, then to try and keep the other players away while I eliminate the weapon and murderer. Each time you make a suggestion, the person you name is automatically moved to the room where your piece is, so it may be possible.

So far the computer has always been about three steps ahead of me — ah well, perhaps I am destined to the life of a rookie detective.

Conclusions

I think this is the sort of game I could enjoy playing on my own while bed-ridden or recovering from flu. It involves a bit of a mental challenge but no great speed or skill.

The worst thing about computer Cluedo is the ludicrous price. How can Virgin Games possibly justify charging £29.50 for one 140k disk and a flimsy manual? The answer is they can't for the more popular machines.

The PC version of the game was reviewed in the May edition of PC Answers magazine, together with computer based Risk, Monopoly and Scrabble. For the PC or Amiga you can buy all four for £35 — a much better buy. Cluedo is a good conversion of the board game — especially for anybody with a][+. If it was around a tenner I would say go out and buy a copy it's well worth it, but at £29.50 I can't see many Apple][users being able to justify the price.

Many thanks to MGA for the loan of the review copy, published by Virgin, available from MGA tel: 0797 226971 price £29.95

Odds 'n' Ends

Access DT

What is role-play?

As far as gaming goes, role-playing games (RPGs) involve taking control of a character and developing that character, both physically and mentally. So where do computers come into role-play? They often act as a referee, 'rolling dice' much quicker than their human counterpart can. But computer role-playing games are in some ways very limited. There is never going to be as much interaction (or at least not for a long time) between the player character (PC — controlled by you) and a non-player character (NPC — controlled by the computer or referee) when a computer is the referee, because it does not really cope with speech very well.

For a start, you have to type what you want to say; this may seem obvious, but for some people this slows the game down a lot. Also, most computer RPGs just look for keywords like 'hello', 'you', 'me', 'where', 'why', 'how' etc., so you have really very little free-dom of speech because, although this system may sound adequate, when you actually put it in practice you can never seem to get the computer to understand what you mean.

Aside from interaction between PCs and NPCs what other disadvantages are there of having a computer as your referee? You never have the same freedom of actions with computers. Once, playing Dungeons and Dragons (with no computer involved) I turned myself into a gas, floated into a monster's ear, and turned back to my human form again. Not a pretty sight. That sort of obscure thing could never happen on a computer RPG. Of course, there are also some advantages to the computerised version. Even the best Dungeon Master takes time to look up tables in books and roll dice whereas the computer, in comparison, takes virtually none. Often, there are 3D graphic representations of the area your character is in. You don't often get that with non-computer RPGs, unless you are playing a board-based one. Scenarios are often larger on computer than the average non-computer scenario (probably because they have to sell). The other advantage of computer RPGs is that they can be played by one person rather than requiring a group — although some would argue that the best thing about role-playing is the social contact.

If each method has its pros and cons, what is the best solution? Well, the obvious area to look at is computers controlling a non-computer game. Indeed, people have already developed software to do this. I have seen HyperCard databases, scenarios, and char-acter generation programs, all specifically designed for role-playing games like Dungeons & Dragons. I, my-self, have written a HyperCard scenario creator/player called Dungeon Master (original eh?). If you want a copy, send a blank disk — and return postage — to me ("Access DT") via the Liverpool P.O. Box. Other people as well as myself have found these applications useful.

What is my conclusion then? If you want a lot of playing time, whether your friends are interested or not, then your best bet is a computer RPG (like Might

and Magic or Wizardry), but if you want freedom, social contact and a fair chunk of dice rolling for good measure, then try something a little more traditional (like Dun-geons & Dragons or Middle Earth Role Play). If you want the best of both worlds, and you're dying to find a reason to use that Mac or Apple][of yours, then try my preferred method — C.A.R.P. Computer Aided Role Play (there's something fishy around here). If you are interested then you will find lots of software hanging around, including Dungeon Master, on Compuserve or any other bulletin board, I imagine.

Dave

Nautilus

How about a CD-ROM, with 300Mb or more of public domain material for $12? Yes — that's $12 (roughly £6.66 at the current exchange rate — and that includes shipping from the U.S.!)

This remarkable company offers one disk a month for the next year for an all-inclusive price of $149.40. I paid by credit card as this is far and away the easiest method. Every four weeks, I get a CD-ROM of new material for my Macintosh, containing games (of course!), half a dozen scanned photographs (cleared for free use — no copy-right to pay), any number of QuickTime movies, the latest anti-virus software, tools for Hypercard program-ming, multimedia reports (eg on the recent NASA STS-45 Shuttle Mission) and even some excerpts from forth-coming Windam Hill records. And of course, standard issues of Apple System software (including System 7, the tuneup, all versions of Hypercard and so on and so on). **If you have a CD-ROM player, then subscribe!**

Contact: Nautilus
            7001 Discovery Boulevard
            Dublin
            Ohio 43017-3299
            U.S.A.

Cost is $119.40 plus $30 shipping = $149.40.
(Remember to say you want the **Macintosh** version...)

(And mention my name, won't you? If enough people subscribe, then I get a free issue! Thanks — Peter Kemp.)

Please send letters, high scores, tips and hints (in fact, anything to do with games) to the Post Box at Liverpool marked for the attention of:

E.E.Littlewood: Reviews and articles
Access DT: Everything else

New Newton Technology

Apple Previews the Industry's first PDA Device

CHICAGO—May 29, 1992—After months of industry speculation and anticipation, Apple Computer, Inc., today provided the first glimpse of its Newton technology. This new technology will be the core of Apple's first major new product line since the popular Macintosh personal computer was introduced in 1984.

Shown today at the Summer Consumer Electronics Show, Newton devices fall into an emerging new class of products that Apple calls Personal Digital Assistants—devices that use digital technology to bridge the gap between personal computers and consumer electronics. Newton is also the first new technology announced from Apple's new Personal Interactive Electronics division, which has been chartered with extending the company into new growth areas, where Apple has unique technology and business advantages.

"The possibilities for vendors and customers in this emerging market are enormous," said John Sculley, Apple's chairman and CEO. "The convergence of digital technology and information represents the biggest opportunity for Apple and other vendors in the personal computer, consumer electronics, telecommunications, entertainment, and publishing industries since the advent of personal computers. And Apple is poised for success with multiple projects and technology that will come to fruition over the next several years.

"Newton is a technology that exemplifies the best of Apple's strengths: using leading-edge software technology to allow people to do things more easily and efficiently," he added.

Newton is an entirely new technology from Apple that will be the basis for a broad array of new products. To assist in the proliferation of Newton technology, Apple is licensing Newton to selected vendors to use in their own versions of Newton devices. Last March, Apple announced such a relationship with Sharp Corp. of Japan. Sharp has licensed Newton technology from Apple for its own future products, and will also jointly design and produce the first commercial product version of Newton technology for both companies, due out early next year.

The first Newton products will be electronic notepads that intelligently assist the user in capturing, organizing and communicating ideas and information. These products will be small, portable devices that allow freeform notetaking, drawing, calculating, scheduling, and communicating. Newton's revolutionary new hardware technology offers performance capabilities similar to a high-end personal computer, and because of its unique software environment, is very easy to learn and use.

Breakthrough New Technologies

Groundbreaking technology from Apple has been under development for more than four years and has provided the basis for a number of core technologies in Newton.

Newton Intelligence:

Newton will actively assist users in their day-to-day tasks. As the device is used, it will learn more about the user and actually propose solutions to help them work more efficiently. For instance, if a user wanted to schedule "lunch with Jane", they would simply write "lunch Jane Thursday". Newton technology would know that lunch normally means noon, and that Jane in the individual's address book is Jane Green, and that Thursday probably means this Thursday. A Newton device would then suggest this to the user, by opening their calendar to Thursday and scheduling lunch from noon to 1 p.m. with Jane Green.

Recognition Architecture:

The goal for the recognition architecture is to make using Newton products as easy as using a pencil and paper. Newton products will be able to read a user's handwriting, transform it into text as they write, and quickly refine and scale drawings or sketches. Newton technology allows the user to write in a natural and freeform manner because it does not limit the user to writing in boxes or on lines on the screen surface. This Newton technology is different from other pen-based operating systems because it is based on the simultaneous use of several recognition technologies, rather than forcing the user to choose one at a time. The benefit to the user is a higher recognition factor and greater adaptability to personal style.

Information Architecture:

Newton devices will provide users with a single repository for all of the little pieces of information they would typically accumulate in various forms (phone numbers, business cards, directions, meeting notes, birthdays). Because of the advanced object-oriented data structure, Newton products will then allow users to organize the information so that they can easily access it in any variety of ways. For instance, a user could view the information for everything that relates to a specific client, a specific week, or a specific subject such as "Jane Green".

Communications Architecture:

Newton technology was designed from the ground up to take great advantage of communications. These new products will foster easy communications between various Newton product users in meetings, on the street corner, or during lunch. Newton devices will have built-in wired and wireless communications capabilities. For instance, two Newton users could compare calenders or exchange business cards. Newton users could also fax a letter, check electronic mail messages or connect to a satellite news service to obtain current news or stock information.

Hardware Architecture:

Newton technology is based on a new breed of powerful RISC processors optimized for high performance, low power consumption, and low cost. The Advanced RISC Machines, Ltd. (ARM) RISC processor Apple has chosen, the ARM 610, gives Newton products the equivalent power of leading desktop computers, yet consumes less battery power than a small flashlight. In addition, the Newton architecture allows users to add intelligent cards to increase the amount of information the products can access and store as well as add more specific functions. Both Apple and third party companies will provide a variety of intelligent cards to give users choices for specific needs.

Industry Leaders Announce Support

The first group of a number of major companies have announced support for Newton technology and have committed to development of future complementary products. Representing many industry segments, the range of products expected will be focused in the general areas of 1) communications products—to enhance the use of Newton devices in a mobile environment; 2) content products—to offer users a wide spectrum of interesting and personal information for their Newton products; and 3) compatibility—allowing users to use Newton devices easily in parallel with existing computer systems. Motorola, Pacific Bell, Random House, SkyTel Corporation and Traveling Software, Inc. today all made announcements in conjunction with Apple.

Availability

The first Newton product from Apple will be available in English-language versions in early 1993. Newton-based products from Sharp Corp. are also expected to be available in the same timeframe. Pricing will be announced at the time of delivery. ❡

Apple Press Release

Hellcats Over The Pacific

Mike Dawson Takes To The Skies Over The Solomon Islands In A World War II Flight Simulatior

I was seated in my Grumman F6F Hellcat fighter bomber ready to take of on a new mission. My base is an aircraft carrier cruising of the Solomon islands in the Pacific. The date is 1944 and my mission is to bomb an enemy air base on a nearby island. The radar screen in front of me shows that there is a single enemy aircraft at a distance of 14 miles heading on an interception course. It could be a fighter on patrol or an enemy bomber come to attack my carrier. Then again it could be a kamikaze attack. The only thing to do is intercept. Gunning up the engine to full throttle the Grumman slowly rolls down the carrier deck. "These baby's sure are sluggish when full of fuel and loaded up with two bombs". As the plane rumbles on picking up speed the carriers' control superstructure passes me on the right. The end of the deck is looming up it seems too soon. Will I have enough lift to take off?. I remembered my instructors words "If you need more lift then use the flaps". I hit the flaps control and the whine of the hydraulics responds to the command. As I fell off the end of the carrier's deck I pulled back the stick and the plane responded by pushing it's nose up towards the sky. Wanting to gain height as fast as possible I retracted the undercarriage followed by raising the flaps. As the undercarriage clunked home this heavy metal bird started its relentless climb. Immediately I turned to starboard to make an intercept course for the incoming bandit. The engine droned on at full throttle as I moved in. The radar continued tracking the course of the enemy down to when I was within a mile of him. Peering out of the cockpit I could not see the enemy plane but then a stream of bullets heads towards me. I bank sharply as a fighter zooms past me, that was close, too close. I start manoeuvring to try to get onto the fighters' tail. As we twist and turn in the sky a destroyer below starts sending up ack ack fire which bursts about me. I hope those guys below know who the friendly one is !. After a short dog fight during which neither of us manages to get the better of the other the enemy fighter goes down, hit by the destroyer fire. Thank god someone on that tub knows the good guys from the bad !.

With no other bandits on my radar I head off for my primary target, an airfield on a nearby island. As I approach the target another fighter starts to close in on me. I figured that a high level approach followed by a dive bomb attack would leave me exposed to his attentions. So I opt for the more difficult (and safer) low level run. Skimming over a hill before descending upon the base I was hoping the enemy would still be asleep. I hope in vane as ack ack fire broke around me and bullets flew past my plane. As I approached the base I banked sharply to home in on the main runway. As I flew down the line of the main strip I released one bomb and then moments later the second gift from the Pacific fleet. With ack ack still bursting around my ears I sped off hugging the ground making good my escape. The satisfying boom, boom of the bombs finding, I hoped,

their targets reached me as a turned once again to head back to the carrier to rearm and refuel. The pursuing fighter broke off as my superior speed made his chase futile. These baby's are fast, but without two bombs to slow me down then nothing can catch me.

As I made my approach to land on the carrier another enemy aeroplane came into the attack. I broke off my landing run to intercept. As I engaged the plane he managed to evade me and pressed home his attack on the carrier. To no avail as the carrier's defences were ready and some well aimed ack ack fire brought him down. His plane corkscrewed into the sea with smoke and flame trailing behind him. As the aircraft made it's final splash I noticed a parachute drifting towards the sea. The small form of a man could just be made out as he entered the drink. "His war was over" I thought. Returning my attentions back to the carrier landing I was horrified to see it's deck on fire and the vessel listing to starboard. The enemy bomber had found his mark after all. There was nothing more to do but turn to the nearest land base to rearm and refuel.

The above account is not a 'flight' of fancy but a recount of a mission I flew in this amazing new game from the Graphics Simulation Corporation. This flight simulator is like nothing I've experienced before on the Mac. It is in full colour and runs on any size screen (with enough memory available). The sounds and action are fluid and realistic from the whirr and clunk of the landing gear to the explosions on decks of carriers followed by smoke and fire. I have found it not to be an easy game to play as the enemy planes seem to know your intentions and counter manoeuvre very effectively. This can lead to lengthy dog fights as the computer tries to gain the upper hand.

This above recount is but one of the seven missions that can be attempted in this riveting and stylish game. The eighth is a training school where the flying basics can be learnt in (comparative) safety. As you gain more skill and expertise then you are promoted through the ranks to Captain. I don't know if the game gets more difficult to play at the higher levels as I have not managed to progress past the initial Lieutenant rank. (But then I've only been playing two days).

There are various levels of detail that can be invoked in setting up the programme. Amongst these are the levels of detail displayed and whether sound and clouds, haze etc. are to be included. Two of the most impressive for me are the shadow and ground clutter options. The shadow adds a ground shadow to any moving object on the ground according to the angle of the sun. Many the time has happened that I've found myself chasing after the shadow and not the enemy plane !. The second, ground clutter, adds trees on land and sea horses (white wave crests) when flying over the
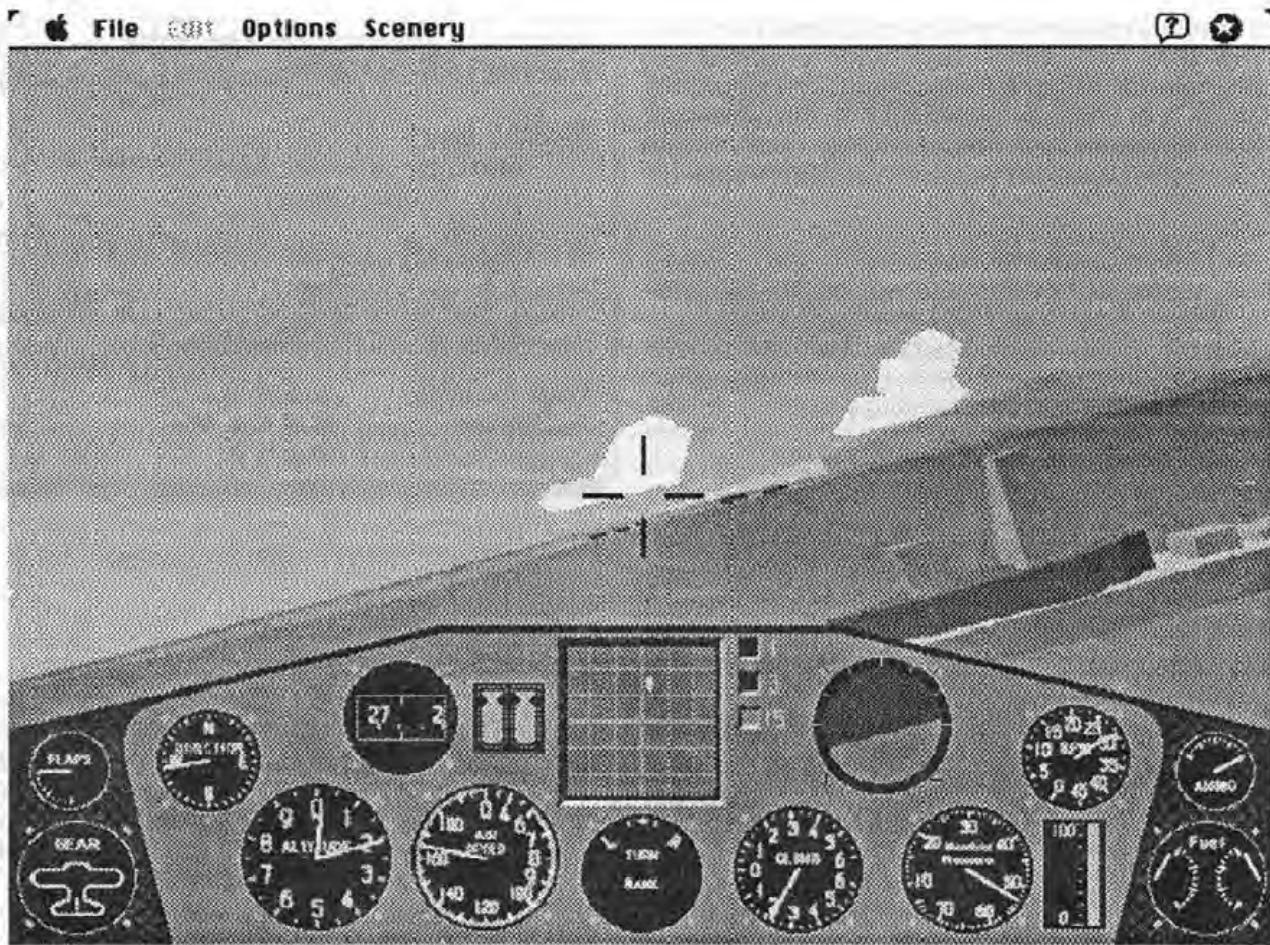
A Screen Shot of the game as I fly over a friendly destroyer firing on an enemy island - my next target.

sea. This is invaluable when trying to access the location of the ground. It is not always advisable to take your eyes off the cockpit view when engaged in a dog-fight.

There is nothing wire frame about the graphics as all the shapes, whether animated or static are filled in, are shaded where appropriate and very impressive. The Grumman is always blue in colour when viewed from the chase plane or the control tower (always the nearest). Alternatively the enemy is always black (very appropriate). The ships are in various shade of grey which you would expect. The islands are various shade of brown and green. The trees are green with brown trunks, the sun is yellow and at this point I could go on. The realism is so good that when the undercarriage winds up the sound is heard including the clunk when the gear locks. If you are unfortunate enough to get hit then the sound of bullets thudding through the aeroplane are heard. The instrument panel will tell you of the trouble that is if you have time to take a look during an attack. Sometimes the first thing you know is the engine starts to misfire and then dies. All that is left to do is glide in an eerie silence and attempt a crash landing or eject.

The graphics are stunning and always remarkably fluid. I tested the game on a Quadra 700 and felt that some of the smooth animation would be lost on my Mac II. Although it does run a little slower it is never the less still fluid and very realistic. I was surprised that it did not run a lot slower than it did having seen the difference in speed of Microsoft's Flight simulator on my Mac II and a friends PowerBook 170.

I could go on and on here but I trust you have a flavour of what this game is like. Now onto what it takes to play the game.

This game will run on any machine with 2 M bytes of

RAM in which to run in and a 68020 processor. It will run in 1.5 M bytes but the sounds will be disabled. Colour is an option but I would highly recommend it. So this means that the Mac II range including the LC will run this game. The Classic II and PowerBooks will also run it. The requirement for at least 1.5 M bytes of RAM refers to the free RAM after the System has taken it's cut. SO realistically using system 7 4 M bytes is a must. For those of us still running System 6 then that is OK but any earlier version of system software will not co-operate with this game. Alas the Classic, Mac Plus and a real blow to me, the Portable, will not be able to run this game at all.

The game comes with an A3 full colour scale map of the Solomon islands marked War and Navy Agencies department and two manuals. The first is a small booklet which explains how to install and register the game as well as the controls to play it. The second is a much larger affair with the Grummond technical manual which is claimed to be a copy of the original. I don't doubt it as it seems to have details of all the aeroplane including such things as the cockpit, hydraulics and air frame. The second part of this manual has a flight manual which can be described as an idiots guide to flying but is the most comprehensive document I have seen with a flight simulator.

This game is partially copy protected as every time it is started up it asks a question about the manual. Until this is entered the game will not run. This is laborious but when the game is registered the company sends an authorisation code back to allow this game to be played without this annoyance. This is a neat ploy to get people to register.

If you like flight simulators and games then this one is

for you. I usually rate games on how much time I waste on them, This one is the biggest waste of time I've come across. So much so you are very lucky indeed that my Mac portable does not run it as this article would never otherwise have been written. I would have been flying the Pacific on the 18:10 train from London St Pancreas instead of writing this review.

In conclusion this game is a little expensive but it is also head and shoulders above any other aircraft combat game I've seen. It's nearest competitor is MicroSoft's Flight Simulator which runs slower on my Mac II and does not include any combat at all. I think it is utterly utterly brilliant - get it - nuf said, I'm off on another bombing run. 🍎
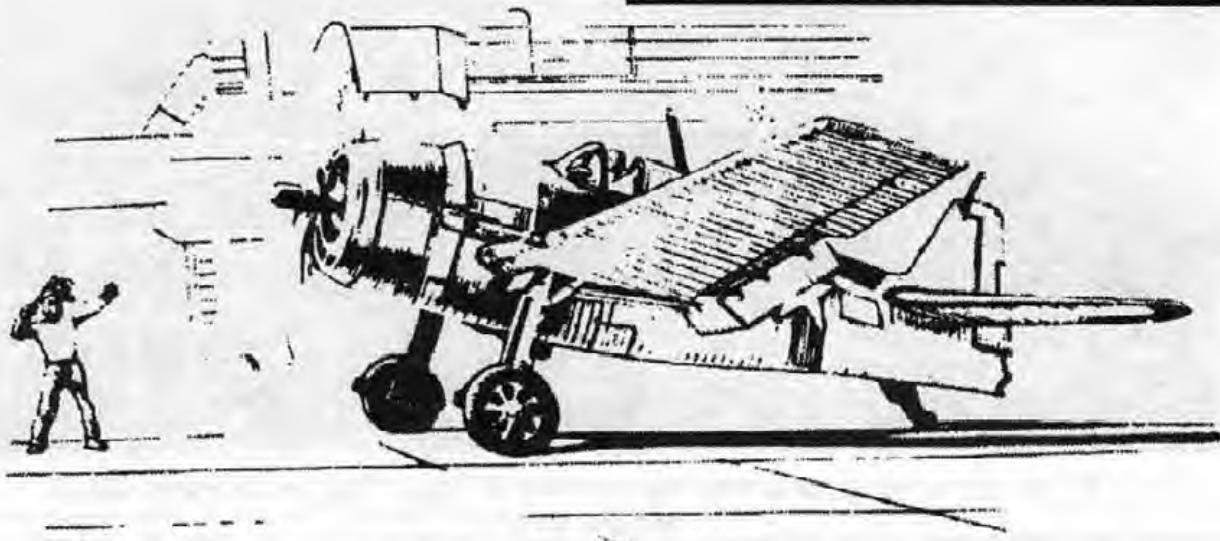
LanRover/L

2nd Generation Network Dial-in Server for PowerBooks and Macs

Shiva Corporation have announced LanRover/L, a second-generation dial-in server for the new Apple PowerBook. Compatible with AppleTalk Remote Access (Apple's dial-in software), LanRover/L provides users and network managers with a number of unique benefits that address the special needs of workgroups or departments implementing remote access on a several-user or large-scale basis.

LanRover/L is a compact hardware device that connects directly to the network. Remote PowerBook or Macintosh users dial into LanRover/L and are then able to access file servers, e-mail or any other network services. LanRover/L also provides shared dial-out — which allows users to access on-line information services such as CompuServe or America Online. Other features, such as centralized management and advanced security, address the needs of the departmental network manager.

LanRover/L is the first in a line of next-generation Shiva servers planned for introduction in 1992. Shiva's new servers, such as LanRover/L, address the implications of an anticipated explosion in dial-in network access.

Centralized Management

LanRover/L is unique in that it can be centrally managed and configured. Using the bundled Shiva Net Manager software, one or more units can be configured and managed from a Macintosh anywhere on the network, even a remote location. Network managers can configure the LanRover/L, add or delete user lists and passwords, and set zone access privileges. User information can be downloaded to multiple LanRovers simultaneously.

Security

To restrict unauthorized access, security features include individual user and administrator passwords, dial-back security and configurable zone access privileges. Automatic dial-back offers two advantages: an added level of security and more efficient billing for corporate users. An activity log, accessible through Shiva Net Manager, keeps track of when a LanRover/L remote access connection is attempted, established, or disconnected. It also reports error conditions and dial-out activity.

Shared Dial-Out

Macintosh users on the AppleTalk network can dial out through LanRover/L to access information services like AppleLink or CompuServe. Shared dial-out saves network administrators the expense of dedicating a telephone line and modem to each Macintosh user, as well as the time spent managing multiple lines and modems. Any user running Macintosh System 6.0.7 (or later) or System 7 can take advantage of this feature.

Dedicated, Reliable Server

LanRover/L is a dedicated, stand-alone device that can be easily installed in a secure location. Network managers can choose to lock LanRover/L in the telephone closet — protecting it from accidental shut-off or user tampering.

Since it's a dedicated device, LanRover/L doesn't suffer performance degradation, even under heavy server use, or from competing loads imposed by end user applications.

LanRover/L provides a cost-efficient solution. In networks with several remote users, the cost of dedicating a Macintosh as an AppleTalk Remote Access server can be high.

LanRover/L is distributed in the UK by Principal Distribution Limited. For further information, please contact Samantha Stern, WBN International, 071 255 2154. 🍎

BeagleWorks

A review by Richard J N Brewer of the latest integrated package for the Macintosh

BeagleWorks is the latest integrated package for the Macintosh, produced by Beagle Brothers who are already well known to Apple 2 users . This new product competes head on with ClarisWorks, Microsoft Works and GreatWorks . It has been eagerly awaited for several months and was formally released at the recent MacWorld Expo . The UK version taking a further few weeks to be finalised .

The interest in Integrated packages has dramatically increased since the release of the low cost Macs , with many users wanting a suite of programmes to meet most of their need without having to spend many hundreds of pounds on a number of individual programmes . The further easing of integration , already well established by the Macintosh environment , is a further advantage of this approach .

This review will first consider the individual modules within BeagleWorks and then consider the overall integration . In common with the competitive packages BeagleWorks features the following modules.

1) Word processor
2) Spreadsheet
3) Charting
4) Database
5) Drawing
6) Communications

In addition BeagleWorks also offers a colour drawing package .

These individual modules are integrated together to provide a complete framework for the preparation of documents containing elements from one or more of the individual modules .

Package

BeagleWorks comes in the familiar size box containing the programme discs, a tutorial guide , a detailed reference guide and a useful card listing the keyboard shortcuts and toolbar shortcuts . The provision of a common toolbar is one of the many features that make the package easy to use

Installation

Installation was very easy , taking less than five minutes . The installation process is fully automatic , requesting inserting the programme discs supplied as required . Beagle Brothers suggest a memory size of 1500K (2000K under System 7), with a minimum required size of 900K . The programme is System 7 savvy but will work with System 6.05 or later .

Overview

BeagleWorks operates on the principle of frames which can be any of the types (except communications) already listed . These can be combined together to produce compound documents . Modifying these elements is easy due to the provision of "in context editing " . This is the feature allowing the frame to be changed using the features of the

module from which it has been created , without having to leave the document . A window appears round the frame complete with scroll bars and the toolbar and screen headings change to reflect the module of the frame . Any changes can then be made , which are automatically included in both the compound document and the frame .The frame item is a separate file which can be opened in it's own right .

Frames are linked to the document by Publish and Subscribe . This has many advantages , two key ones being that other system 7 savvy programmes have full access to the data and the second that documents are linked using standard Apple systems .

BeagleWorks is system 7 savvy allowing full use of Publish and Subscribe from other programmes and from within itself . This is made even simpler to use by the provision of Quick Publish and Subscribe which automatically handles the connecting and naming of published items in an analogous way to copy and paste .

BeagleWorks uses Claris Corporations XNTD system to provide a wide range of file import/export formats .

Key Features

All modules have a common toolbar which is situated above the document which provides easy assess to the most commonly used features.This feature can be turned off for a larger document window if required . Tear-off menus are available for colour fills , patterns and pen sizes . Using an SE/30 with colour monitor , the tear off menus could be conveniently placed on the small screen for quick access .

Rulers can be selected for all modules and can be calibrated in inches , centimetres or picas . Feint lines are shown on the rulers to show the position of the cursor for accurate aligning .

Word Processor

The word processing module proved to be very powerful and easy to use . Named type styles are easily created for regular use . The types styles in the menu are shown can be shown in their own font or listed in the default font . Multi - column formats can be easily set up for any horizontal sections of the page . Mixing the number of columns on the same page is easily achieved by the provision of sectioning . Paragraphs can be automatically indented . The common toolbar provides instant availability of bold, italic , underlined , subscripts and superscripts , as well as the line spacing and justification controls . Print preview is always available with documents being able to be viewed and worked on at sizes of 25% to 800% of the original .

Graphics can be included in the document at any point . One of the powerful features available being the availability of irregular word wrap round objects .

A useful feature is the ability to show all the formatting symbols . Auto page numbering and the automatic addition of date and time are also available . Word counting can be a useful statistic whilst preparing documents . A very powerful module with many of the features of stand alone packages .

The 110,000 word spelling checker and 660,000 thesaurus from Microlytics proved to be very good .The spelling checker suggested "physics " when presented with "fizicks" , it has been fully Anglicised .

Spreadsheet

The spreadsheet module contains all the features you would expect . It operates as most others I have seen , with a full range of functions including look-ups as well as the normal list of mathematical ,trigonometrical, date , time , statistical , logical , financial , and special . These are

available from paste function which can be restricted to one of the groups listed , or to show all . A very useful feature available from the tool bar is the auto sum . By highlighting rows and or columns , sets of data can be automatically totalled . Whilst some packages offer more functions , the list in BeagleWorks seems more than adequate for virtually any task.

Data types include numeric, date , time , logical and alphanumeric . Full formatting is available . Cell notes can be entered .

Charting

Charting is achieved from the spreadsheet module by highlighting the date required . A range of 2 dimensional line graphs , bar charts , pie charts , area charts , scatter graphs are available . Logarithmic as well as linear axes are available where appropriate .

Charts are produced in a new draw window , allowing easy editing for final presentation .

Database

The database is of the familiar flat form type which is also able to accept memo , computed and picture fields as well as the normal date , character and numerical . Virtually all the functions from the spreadsheet module can be used in computed fields . Different layouts can be defined for each database which are always available . Data can be selected on a total of six " rules " , if more are needed the selected data can be copied to a second database with a further set of selections .

Labels can be directly printed from the database module , which can accept side by side as well as one across styles.

Reports can be automatically generated including totals and sub-totals from the set/sort totals menu .

Draw

The drawing module contains an extremely comprehensive set of tools . These include smoothing of polygons and a full set of fill colours , patterns and pen sizes and styles . Special effects can also be produced using the duplicate command which gives full control of offset in the x and y directions and the number of duplicates required . Editing functions allow reshaping of polygons , smoothing and unsmoothing , along with vertical and horizontal flipping . Rescaling can be accomplished with individual control of x and y directions or with both the same . The pen size can be kept the same size or rescaled .

A very sophisticated module which is likely to meet the need of virtually all users .

Paint

In addition to the draw module , BeagleWorks also provides a full function paint module . As well as the shape drawing tools there are pens , paint brushes , paint bucket for colour filling of objects and the spray can . The pen and brush tools can be customised from the range supplied or by customisation for unique effects .

Special effects allow objects to be flipped vertically or horizontally . This can be used to turn a picture of someone looking to the right, to one where they are looking to the left . Negatives can be produced from the invert command . Using the fill command with lasso would allow a coloured or filled outline from a scanned or drawn image .

Communications

Not having a modem I was not able to test the communications module . It appears to have all the required options , but not being conversant with this aspect of

Macintosh operations I cannot pass further comment.

Overall Integration

Overall , I found the package very easy to use , the integration between the individual modules being good . In context editing makes the modification of data from other modules very easy without having to continually return to the originating document to make changes . Full control of when/if published data is updated is available .

Overview

The more I used the programme the even more impressed I became with its wide range of functions and ease of control . The integration of the modules was very good , a point confirmed by a number of Beta testers as reported in the USA publication MACWEEKLY .

Nobody should buy an integrated package without seriously considering BeagleWorks . In fact for most users , including small businesses , it is likely to meet virtually all their needs without having to buy a range of stand alone packages .

BeagleWorks is well able to challenge any of the presently available integrated packages .

I do not see that the lack of a so called upgrade path is of major concern due to the very high functionality available within BeagleWorks . Beagle Brothers are committed to a programme of continual improvement and do not have to be concerned with competing with their own stand alone packages .

Module Details

>Word Processor: wide range of functions including irregular text wrap around with spelling checker and thesaurus .

> Spreadsheet: 16,384 rows by 256 columns , with 65 built in features . In cell editing and cell notes .

>Database: 16,384 records with a maximum with up to 256 fields . Cell types can be numeric , text , time , picture , memo and computed .

>Draw: 24 bit colour with a wide range of shapes and tools .

>Paint: 8 bit colour with a wide range of painting and drawing tools , including fatbits editing mode .

>Communications: based on Apples Macintosh communications toolbox .

Distribution and Pricing

Word 5 Keyboard Commands

By Geoff Wood

Devotees of Microsoft Word know that you rarely need to use the mouse. Many of the commands can be actuated from the keyboard by using a combination of the Command, Option and Shift keys with a character key.

Appendix C of the Word 5 User's Guide shows the keyboard commands grouped by function. And if you call up the Commands dialog box and click the List button, you get a document which lists all the commands in alphabetical order. But there is no list to show the commands in key order. I created my own list which is set out in the main table. The second table shows the effect of using the keypad keys when Num. Lock is off. The third and fourth tables cover the function keys and special keys on the extended keyboard.

Most of the keyboard commands in Word 4 and Word 5 are identical. Those that differ are shown in italics in the tables.

Some of the commands are difficult to remember, but most of them are based on a logical pattern.

The commonly used menu commands such as New, Open, Save and Print follow the Macintosh convention of holding down the Command key and pressing the initial letter of the command. However, not all the commands can be alpha-mnemonic. The Find command is Command-F but the Footnote command is Command-E. The Ruler command is Command-R but the Replace command is Command-H and the Repeat command is Command-Y.

It's easy to remember that Command-C means Copy, but how can you remember that Command-X means Cut? Just think of a pair of scissors. To remember that Command-V means Paste, think of the V symbol used by editors to indicate where text should be inserted. And to remember that Command-Z means undo or redo, think of a zip fastener. Another aid is that these four keys are side by side just above the Command key.

Most formatting operations can be done by holding down both the Shift key and the Command key before you press a character key. Thus Command-Shift-B switches bold face on or off, I switches italic on/off and U switches underlining on/off. However, for Word 5, Microsoft have bowed to Macintosh convention so you can also use Command-B, Command-I and Command-U for these formats. In turn this has meant changes to the commands for Page Layout View, Page Preview and Outline View.

Paragraph alignments such as centred, justified, left and right aligned can be done by using Command-Shift with C, J, L or R. You can also use Command-Shift-N and M to 'nest' or 'un-nest' the left margin to the next or previous tab position. Command-Shift-F and I offer indented first line and hanging paragraphs respectively.

Command-Shift-> and < change selected or subsequent text to the next *standard* font size up or down. Word 5 offers new commands to increase or decrease the font size by one point. These are Command-] and Command-[respectively.

Command-Shift-E allows you to change fonts by typing the font name—or the first letter or two of the font name—and then pressing Return. Command-Shift-S allows you to change styles by typing the style name——or the first letter or two, or the short name—and then Return.

You don't need the mouse to select text. Use the arrow keys or keypad keys—with the Command key if you want to amplify the movement—to locate the insertion point at the start or end of the text you wish to select. Then hold down the shift key and use the arrow keys or keypad keys to select the text.

Some commands require the use of the Option key with the Command key. These include Command-Option-C and X to copy or move text without the need to paste, Z to move the insertion point to the previous location and W to activate the next window. In Word 5, Command-Option-N, O, P and I give Normal View, Outline View, Page Layout View and Print Preview.

Some Command-Option combinations are designed for the original Macintosh keyboard—with no keypad—but they still work on the newer keyboards. These include Command-Option-J, K, L, ;, B and Y to move the insertion point to the next or previous character, word or paragraph, and Command-Option-comma and full stop to move the insertion point down to the next line or screen. If you use the Shift key with these commands, the text will be selected. The advantage of these shortcuts is that you don't have to move your hand to the keypad to move the insertion point or to select some text.

Some commands require the Command, Option and Shift keys to be held down. These include Command-Option-Shift-C which displays the Commands dialog box, Command-Option-Shift-S which opens or closes the footnote window and Command-Option-Shift-Left Arrow which enables you to create or change keyboard shortcuts. Also, you can use Command-Option-Shift-= to add a command to a menu but the shortcut works just as well without the Shift key.

Word 5, like Word 4, has two keyboard commands for hidden text (Command-Shift-V and X) and there are now duplicated commands for Bold, Italic and Underline. There are also some unused combinations such as Command-Shift-A and Command-Option-U. However, the Commands command allows you to set or change these keyboard combinations to suit your own requirements.

Some keyboard shortcuts don't seem to work as specified. According to the Commands List, Command-Option-Shift-> and < should change the font size up and down but I found that these commands select the next paragraph or line of text. Also, Command-Option-Spacebar should insert a paragraph mark above a row in a table but I found that it did nothing. However, the alternative, Command-Option-Enter worked all right.

The descriptions of some commands may be confusing to the novice. For example, Microsoft's description of what happens when you press + on the keypad or Command-Option-/, is 'Scroll Line Down'. In actual fact, the text on the screen moves up. However, the effect is equivalent to clicking the arrow at the foot of the vertical scroll bar so it makes sense. Conversely, when you press * on the keyboard or Command-Option-[, the text on the screen moves down, yet Microsoft describes the action as 'Scroll Line Up'. This is equivalent to clicking the arrow at the top of the scroll bar.

A useful command for those who dislike using the mouse is Command-Tab—or keypad decimal—to select the menu bar. You can then drop a menu down by pressing the initial letter. To select Format or Font instead of File, hold down the shift key and press F two or three times. Alternatively, you can use the right and left arrow keys or press a number—not on the keypad—from 0 to 8 (or 9 if you have a Work menu). Menu commands can then be selected either by using the up and down arrows or by pressing the initial letter of the command. So Command-Tab F S S Return brings up the Save As dialog box.

The keyboard can be used instead of the mouse in dialog boxes. For example, if you use Command-M to bring up the Paragraph dialog box, you can use Command-Tab—or keypad period—to underline the options in turn, then use Command-Spacebar—or keypad zero—to 'click' the option. Some options can be selected by holding down the Command key and pressing the initial letter of the option. For example, Command-C usually operates the Cancel box. If not, you can use Command-period to cancel a command.

Some operations cannot be performed from the keyboard. These include choosing some of the icons from the Print Preview selection and performing an Option select for sorting or calculation.

Changes from Word 4 to 5

Word 5 doesn't have a keyboard command for Repaginate Now, but it is not really necessary if you have background repagination on all the time. Word 4 used Command-J but Word 5 uses this command to show/hide the paragraph markers.

In Word 5, finding formats can be done from the Find command so there is no need for Command-Option-R which instead is used to display or hide the Ribbon across the top of the screen.

Word 4 users who selected all the text with Command-Option-M can still use this command but they can also use the new Command-A. In Word 4 this was the Again command, which is now called Repeat.

In Word 4, Command-Option-Q invoked the Paste Special Character command with which you could paste in any character, provided you knew the ASCII code number. With Word 5, there is a Symbol command on the Insert menu (or ☞

Command-Option-Q, as in Word 4) This brings up a window displaying all the characters in the font and size you are currently using. (You can choose a different font from the Font menu.) Just click on the character you want to insert. This is much easier than using the Keycaps desk accessory from the Apple menu.

With Word 4 you could select a character and use Command-Option-Q to show the ASCII code. In Word 5, if you want to know the ASCII code for a character already in your text, just select it and use the Symbol command or Command-Option-Q to display the code at the bottom of the Symbol window of characters.

In Word 4 my pet hate was having to use the mouse to operate the 'Yes' button to replace an existing file with the 'Save As' command. Now, there is a default button for Cancel and another button for Replace which you can actuate with Command-R.

All in all, Word 5 is better than Word 4 and it is definitely my favourite word processing program.

Word 5 Keyboard Commands

Character	With command key only	With command & shift keys	With command & option keys
A	*Select all*		Find again
B	*Bold on/off*	Bold on/off	Move to next paragraph
C	Copy	Centre paragraph	Copy text (without paste)
D	Character...	Outline on/off	Copy text as graphic
E	Footnote...	Font change	
F	Find...	First line indent	Delete next character
G	Go to...	*Grammar...*	Delete next word
H	Replace...	Small capitals on/off	Extend selection to...
I	*Italic on/off*	Italic on/off	*Print Preview...*
J	*Show/hide ¶*	Justify paragraph	Move to previous word
K	Glossary...	All capitals on/off	Move to previous character
L	Spelling...	Left align paragraph	Move to next character
M	Paragraph...	Unnest paragraph	Select all
N	New document	Nest paragraph	*Normal View*
O	Open...	Space above paragraph	*Outline View*
P	Print...	Normal paragraph	*Page Layout View*
Q	Quit	Symbol font	Paste special character
R	Show/hide ruler	Right align paragraph	*Show/hide Ribbon*
S	Save	Style change	Split window / remove split
T	*Style...*	Hanging indent	Outline command prefix
U	*Underline on/off*	Underline on/off	
V	Paste	Hidden text on/off	Copy formats
W	Close window	Shadow text on/off	Move to next window
X	Cut	Hidden text on/off	Move text (without paste)
Y	*Repeat*	Double line spacing	Move to previous paragraph
Z	Undo	Plain text	Move to previous location
1			Remove paragraph border
2			Left thick paragraph border
Hyphen	Optional hyphen	Subscript 2 pt	Delete command from menu
=	Calculate	Superscript 3 pt	Add command to menu
Delete	Insert glossary entry		Delete previous word
Tab	Activate menu bar		
[	*Reduce font size 1pt*	Double underline on/off	Scroll one line up
]	*Increase font size 1pt*	Word underline on/off	Zoom window
Return	¶ with same formatting		Insert ¶ after insertion point
;			Move to next word
\		Dotted underline on/off	Insert formula
'			Intensify next movement
`	Nonbreaking Hyphen		
Comma	Use Quickswitch	Next smaller standard font	Move to next line
Full stop	Cancel	Next larger standard font	Move one screen down
/	Help (context sens.)	Strikethrough on/off	Scroll one line down
Space-bar	Nonbreaking space	*Revert to style*	Insert ¶ above row in table
Shift-Return = Line break		Shift-Enter = Page break	
Shift-Tab = Move to previous cell		Option-Tab = Insert tab (in table cell)	
Command-Option-Shift-C = Commands...		Cmd-Option-Shift-S = Footnote window	
Command-Option-Shift-Left arrow = Assign to key			
Control-Command-V = Insert Row(s) in Table		*Control-Command-Z = Delete Row(s)*	

Keypad keys

With Num. Lock off, the number keys on the keypad can be used to move the insertion point as shown in the table below. To select characters, hold down the Shift key, with or without the Command key, then press the appropriate number key on the keypad. The Command-Option combinations also work in Page Layout view to move from one page element to another.

Keypad	Key only	With command key	With command & option keys
1	End of line	Next sentence	End of table
2	Next line	Next paragraph	Cell below
3	Scroll down one screen	End of document	Next cell in table
4	Previous character	Previous word	Next cell to the left
5		Top of window	
6	Next character	Next word	Next cell to the right
7	Start of line	Previous sentence	First cell in table
8	Previous line	Start of paragraph	Cell above
9	Scroll up one screen	Start of document	Previous cell in table
0	Previous location		
Decimal	Activate menu bar		
*	Scroll one line up		
+	Scroll one line down		Assign to key
-	Extend selection to...		Unassign keystroke
/			
=	Find again		
Clear	Num. Lock on/off		
Enter	Return	Section break	Insert ¶ above row in table

Function keys on the extended keyboard

F key	F key only	With shift key	With command key	With option key
F1	Undo			
F2	Cut	Move text		Edit Link
F3	Copy	Copy text		Update Link
F4	Paste	Copy formats	Paste Object	Paste Link
F5	New document	New window		
F6	Open...	Open		
F7	Save	Save As...		
F8	Print...	Page Setup...		
F9	Revert to style	Plain text		Hidden text on/off
F10	Bold on/off	All capitals on/off		Small capitals on/off
F11	Italic on/off	Outline on/off		Shadow text on/off
F12	Underline on/off	Double underline	Word underline	Dotted underline
F13	Page Layout View	Outline View		Print Preview
F14	Character...	Paragraph...	Document...	Section...
F15	Spelling...	Hyphenation...	Renumber...	Word Count...

Special keys on the extended keyboard

Key	Key only	With command key
Help	Help (context sensitive)	
Del	Delete forward	
Page up	Scroll up one screen	Move to previous page
Page down	Scroll down one screen	Move to next page
Home	Move to top of window	Move to start of document
End	Move to bottom of window	Move to end of document
Left arrow	Move to previous character	Move to previous word
Right arrow	Move to next character	Move to next word
Up arrow	Move to previous line	Move to previous paragraph
Down arrow	Move to next line	Move to next paragraph

GCC BLP Elite Laser Printer

A review by Mike Dawson

Some years ago when I was a student on industrial training the managing director of the small company I was working for said to me. "Mike, you can make as many mistakes as you like, just don't make the same one twice". This was a piece of advice I took to heart but now I have a confession to make. I broke this homily at the last MacUser show. So what is this terrible crime I am confessing to so openly in these pages I hear you ask. Well the year before I bought a hand held scanner, The Typist, at the show where several members of the committee took the opportunity to twist my arm to write a review for the magazine. So my mistake this time was to have ordered another piece of desirable computer equipment at the show. My excuse was that the price I was offered was too good to miss. However I gave others the opportunity to twist my arm once again. The positive side to my erring ways is that you have the benefit of my experiences of this latest Postscript laser printer from the GCC stable.

Over the past couple of years GCC Technologies have made an ever increasing presence in the Macintosh printing world with their budget laser printers both Postscript and non-Postscript. The prices have been falling during this time as GCC and Apple have fought for a market share. The benefit is that the customer now has a greater choice with an ever lowering price. The latest printer to emerge is this 'budget' Postscript printer. Talking to the GCC salesman at the MacUser show he said that GCC had talked to their customers to find what it was they wanted and the result was the Elite. This is in effect a cut down version of the higher priced Business Laser Printer II or BLP II for short.

So what is missing if it is a cut-down version. Firstly there are not so many fonts built into the printer as on it's bigger brother. Secondly there is no built in SCSI port for the speedy loading of extra fonts into the printer on demand. Both of these omissions will slow down the compilation of complex printing jobs. This will be especially important if this printer lives on a network serving many differing needs in an office environment. For a small business or in a narrowly defined work field then these constraints will not be so important.

Overview

The GCC BLP Elite is a four pages per minute Postscript laser printer with QuickDraw and TrueType compatibility. The Postscript interpreter is version 52.3 (whatever that means) and runs on a 68000 based microprocessor at 16.67 M Hz. To help the processor there is a 2 M byte memory which can be upgraded to 4 M bytes if required. To communicate to the printer there are two ports, one to the built in AppleTalk interface and RS422 serial port and the other, a D connector, to the RS232 serial interface. This printer is designed to be used in both the Apple and IBM environments as revealed in the manual. Dimensions are - Height 5.24 inches, Width 17.7 inches, Depth 17.7 inches without the paper tray. With the A4 paper size tray fitted to the printer add about an extra 7
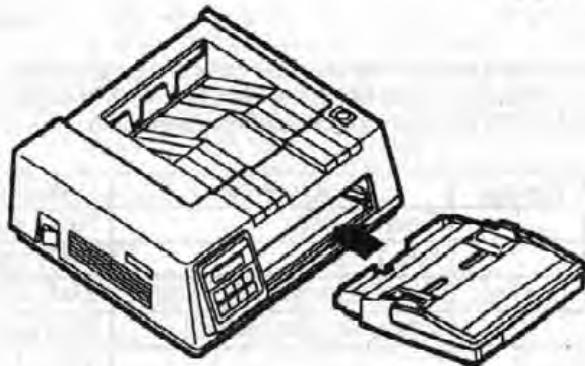
inches at the front to this dimension. It weighs in at 24.2 lbs without the paper tray so it is not light.

Components

The printer arrives in a large cardboard box well packed in polystyrene and wrapped in polythene. The components are as follows :-

[1] The Elite printer.
[2] Toner cartridge.
[3] EP cartridge.
[4] Fuser cleaner pad.
[5] Two manuals, one for the printer and the second for the envelope printing desk accessory.
[6] 3.5 inch floppy disk with the printing tools and Envelope Printing DA
[7] Paper Tray for A4 sized paper.
[8] AC power cord (complete with 13 amp plug for a change).
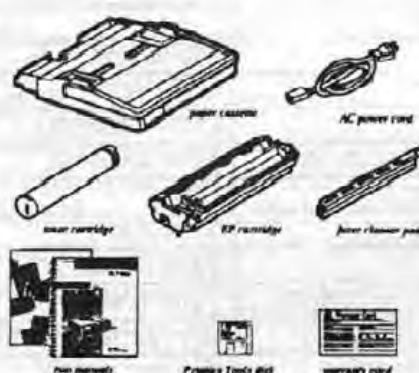
What is missing are the two Apple-Talk connection kits that will be required to hook up the printer to any Mac equipped with an AppleTalk port. These are extra items which will set you back another £63.46 (Inc. VAT) from our Shop2000. There is really no other option as the print drivers that come with this printer assume that AppleTalk will be the method of communication.

Assembly

Following the manual the assembly of the printer is fairly straight forward. The steps in unwrapping the printer and assembling the different parts is well explained with many illustrations provided to remove any doubts. I found the manual to be well written and helpful with tips such as retaining all the wrapping to enable future transport. Carrying around the laser printer is not recommended as tilting the printer will cause the toner (the 'ink') to come out of the cartridge and make a mess inside of the printer. The toner is like soot and has the ability to get everywhere and into everything. This can in the extreme case cause the printer to breakdown.

At suitable points in the manual warnings are issued such as to the correct handling of the EP cartridge which has a light sensitive surface and should not be touched or exposed to direct sunlight.

Everything snaps together easily with only a couple of points needing a little more physical effort as there is some resistance to some clamps. To its credit the manual also

warns about this so I was not left wondering if I was using more force than usual.

Setting Up

Now that the printer has been assembled the next task is to hook up everything on an AppleTalk network. This entc, .s using the network cable kits mentioned earlier. A break out box is connected to both the printer and the Mac and the communication cable between them installed.
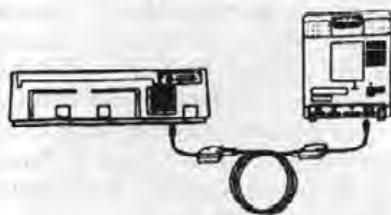
Next comes the software installation in two parts. The first is to install the AppleTalk driver into the Mac if it is not already there. A tip is to use the install programme on the system master discs to load AppleTalk. When the programme is run just select the custom install feature and select to install the AppleTalk drivers only. Do not elect to install the Apple LaserWriter driver at the same time as I will explain now.

The Elite is based upon a different printing mechanism (Oki) from Apple's offerings (Cannon). One of the benefits of this is the Elite's ability to print from edge to edge on a piece of A4 paper. The AppleWriter standard driver will not allow this to happen as it assumes, quite rightly for an Apple printer, that this cannot be done. To overcome this GCC have produced their own Laser Driver. This can be installed from the floppy disc supplied with the unit. The manual explains the installation procedure for both System 6.x and System 7. One small gripe here as the icon of both the standard and GCC laser drivers are the same. This is due to the fact that both drives are written by Apple and GCC have modified one for their machine. So apart from running the driver from a print command and trying to select the edge to edge printing option there is no way to tell them apart. That is unless you take the trouble to open the get info box of the driver to see the following message.

"Contains modifications by GCC Technologies, Inc., to support edge-to-edge printing on the BLP II, BLP IIS, and BLP Elite.".

If there is a desk top rebuild due to housekeeping or swap over from system 6 to 7 then this comment will be lost. The solution is the renaming of the driver so that no confusion can occur. I have tried both drivers and they both work easily as well except for the extra options offered in the doctored GCC version.
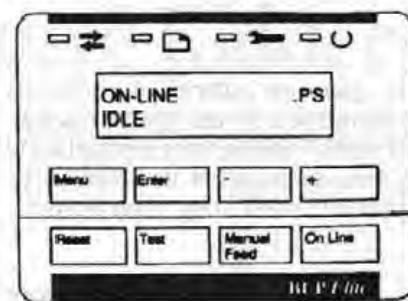
Start-Up

Now all the tedious bits are over all that remains to do is start-up the AppleTalk link from the Chooser and then power on the Elite printer. The manual said that warm up time was about 40 seconds. I won't dispute this claim as I did not time it. However given my impatient state wishing to see something come out of the printer I was surprised to see the test page emerge in a very short period of time, less I feel, than the time stated. This test page always prints on printer power up but can be stopped from doing this from he front panel along with a number of other parameters. These include *interface* which allows the user to change the communication rate as well as the communication standard e.g. from RS422 to AppleTalk. *Paper Handling* will determine the paper tray to be used and the default size of paper. The *Miscellaneous* section enables the selection of such features as the print darkness, start-up page printing and sleep delay. Other pieces of information are available such as the number of pages that have been printed in the life of the printer and the amount of the toner cartridge used in percent.

There are other features available via the front panel keyboard and display but I have only mentioned the most important ones here for space reasons. I found that the printer came set up ready to use as the standard default. The only item I have changed is the printing of the test page upon power up.

Use

The first thing to do is to tell your Mac that the printer exists. That's easy as the chooser will do it for you in exactly the same way as for any other printer except that it is connected to the AppleTalk bus and not directly to a printer port. If the network is working OK the name of the printer should appear and one click will confirm that this is the printer of choice. Now all there is to do is open an application and print away. Be warned though that due to the American origins the default page size on every newly created document will be US Letter and not A4.
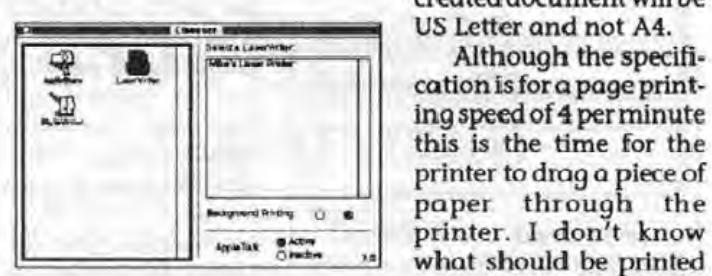
Although the specification is for a page printing speed of 4 per minute this is the time for the printer to drag a piece of paper through the printer. I don't know what should be printed onto that paper to get this rated speed as there are other considerations. So although the printer is 'rated' at 4 pages per minute it does not mean to say that it will attain this level of productivity all the time. Speed is dependent upon a range of variables including the complexity of the print job, speed of the printer processor as well as the mechanical speed of the printer. For any print job to appear in the out tray it has to be processed in the printer. This is where postscript comes in with programmes like PageMaker. Complex pages containing graphics can take a lot of processing and therefore take a long time to appear at the printer. By having a postscript interpreter built into the printer all this processing is simplified and hence quicker to complete.

That does not mean to say that you limited to postscript and the Fonts resident in the printer. The Elite is TrueType and Bit Mapped Font compatible and will down load any font that is required to do the print job providing they are available of course. This automatic downloading of necessary fonts applies equally to postscript fonts as well as the others. The limiting factor is the amount of memory available to the processor inside the printer where the Postscript conversion is done. I have not managed to produce a sufficiently complex job for it to fail. If this does become the case then it is possible to add an extra memory in the printer to help out.

By way of comparison on the BLP II with the built in SCSI port all the font's can be called up from the attached hard disk automatically and not down-loaded from the host computer. This speeds up the data transfer and hence print time as opposed to the slower AppleTalk link. So compari-

sons with the rated printing speed of four pages per minute are not very meaningful given that the method of font loading, the speed of the Postscript processor together with the amount of memory available and the complexity of the print job all affect the printer performance.

Utilities
Printer Name
The Elite printer can be given an individual name just like any other computer connected on an AppleTalk network. The default is "Elite Printer" but a utility is supplied to change this to anything you desire. This is achieved by using an application (supplied) called aptly "The Namer".

Printer Preparation
If there are some fonts that are going to be in standard use then rather than download them every time a print job is run an application called "Laser Prep" (Supplied) can download them to the printer and make them reside there whilst the power is still on. This will speed up printing jobs by avoiding the necessity of the font download every time a print job is executed. The same utility will also reset the printer to its default power on condition. The fonts already resident or downloaded can be examined or printed out at will from the same utility.

Background Printing
The Backgrounder print spooler allows the user to delay the printing of jobs for a specified time or indefinitely. So printing can be delayed and then start automatically during tea break or whilst down the pub for lunch. If this file is not installed into the System folder then the printing will still work but not in the background.
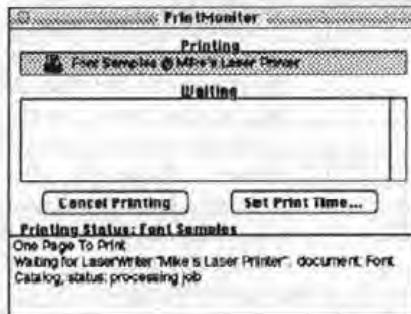
Performance
Print quality can be a rather subjective thing as I do not have access to other laser printers by way of comparison. Printing out a page then scanning it back in only to print it out again in the magazine is not, for obvious reasons, valid. So you will have to take my word for it that the quality is very good indeed. In comparison with my ImageWriter II it is like trading in a bicycle for a Rolls Royce. I do have the use of an Apple StyleWriter which is excellent value with good print quality. Checking out the StyleWriter side by side with the Elite the Elite does win in the close scrutiny test and is significantly better when printing gray scale pictures as can only be expected.

I have in my uses with this printer received mixed performances. PageMaker and Wingz documents print fairly quickly but for some reason Nisus can take what seems like forever. This is particularly true when there is some graphics mixed in with the text. A submission to print to the page actually appearing can be as much as 15 minutes. I do not know the reason why this should be so but I'm not too upset as I now have background print spooling. After years of dutifully feeding single sheets of paper into my ImageWriter II printer I now have the luxury of being able to line up a lot of print jobs and have them printing in the background without it being necessary to stop work at all. There is a noticeable reduction of speed of my Mac II

when moving the mouse around for example. This only happens while the Mac is communicating with the printer. Once the fonts and job have been down-loaded the printer does the rest and the Mac is left to get on with more useful things like amuse me with Boris from More After Dark.

Fonts etc.
Built in Printer Fonts
The Fonts built into the Elite printer in ROM are the usual favourites of Times, Helvetica, Helvetica Narrow, Courier and Symbol. I don't know why Geneva was left out of this ensemble and Symbol left in. I have never used the Symbol Font in all my years of Mac computing and have yet to think of a use for it. On the other hand the Geneva font is one of my favourites and in use all the time as it is both easily readable on screen as well as the printed page.

The following list of fonts are resident in Printer :-
Courier
Courier-Bold
Courier-BoldOblique
Courier-Oblique
Helvetica
Helvetica-BoldOblique
Helvetica-Narrow
Helvetica-Narrow-Bold
Helvetica-Narrow-BoldOblique
Helvetica-Narrow-Oblique
Helvetica-Oblique
Symbol
Times-Bold
Times-BoldItalic
Times-Italic
Times-Roman

The following fonts are supplied on disc for adding to the system file and correspond to the built in fonts.
Courier 9,10,12,14,18,24 point
Helvetica 9,10,12,14,18,24 point
N Helvetica Narrow 10,12,14,18,24 point
Symbol 9,10,12,14,18,24 point
Times 9,10,12,14,18,24 point

Other Features
One of the features of this printer is it will not only print sheets of paper and place them face down on top of the printer but it will also print on straight through paper path. This means that the paper is ejected at the back of the printer and will therefore allow the use of overhead projector clear plastic sheets for presentations. The manual warns that only the specially made plastic sheets for laser printers can be used. Quite emphatic warnings are issued in the manual disclaiming all warrantees if this is ignored. The laser printer uses heat to fuse the toner to the paper (in the same way as a photocopier) and so will melt standard plastic sheets into a gooey mess inside your printer.

Thicker paper stock can be used with the straight paper path and this will enable the user to print their own business cards for example.

Single sheet paper printing is also available either as a selectable option from the print setup dialogue of any application. Or alternatively simply placing the single sheet of paper in the sheet feed guides on the paper cartridge will override the automatic picking up of a new sheet from the hopper. This enables the printing of double sided paper thus saving the forests of the world from consumption.

Envelope Printing DA
One desk accessory is supplied together with its own manual. This is a simple DA to print directly names and

addresses onto envelopes. Like the other items in this package it is well thought out and the manual even has a section to describe the file format to enable the DA to read in a text file. It would be perfectly possible for a HyperCard stack to output a text file correctly formatted so that the DA could read it in. Although designed to work with the Elite I would not be supprised if the DA would work with an laser printer offering from Apple.

Consumables

One of the differences betwen the Apple and GCC printers is the toner cartridge assembly. In the Apple LaserWriters the fixer drum and the toner cartridge are in one assembly. Thus when the toner runs out the whole assembly has to be replaced which makes it expensive in one go to do with prices around the £70 mark. In contrast the GCC toner cartridge is just that and therefore costs around £30 although it will not last as long as the Apple cartridge the price is easier to swallow. I have read a review in the American version of MacUser where the writer gave costings between the two systems and the Apple came out rather ahead in the overall costs over the rated life of the GCC fixer drum (EP cartridge). However there is a little plastic plug in the side of the GCC toner cartridge so there is the ability to add your own toner (any photocopier toner should do) so the costs would be lower. A freind of mine who runs a GCC Personal Laser Printer (PLP II) has done just this and has reported no problems. Just be warned that toner is worse than sand in its ability of getting everywhere and is difficult to remove due to its small granualar size.

The manual giver the toner cartridge a life of approximatly 2,500 pages with the EP cartridge having a

rated life of 15,000 pages. The life of the printer is some 180,000 which works out at 50 pages a day for over 9 years.

Conclusion

The Elite printer is a low line, attractive printer with a good selection of features. Its postscript compatibility and price make it ideal for the small business and home user alike. one (as I did).

I would recommend one to any small business or individual as it is fully compatible with the Apple offering as far as I can tell. I have had not a single problem with it in over two months of intermittent use.

When approaching purchasing one of these printers it is advisable to shop around for the best price. The advertised price is £1495 plus VAT but a much lower price can be achieved from the mail order houses. GCC do not have any dealer network and will sell the printers to any dealer. So there is no such thing as a 'Grey' import in this area. Some dealers have an "Approved Dealer" status which means that they have gone on a GCC course and so can speak with some knowledge and answer most questions. Some of the dealers have gone on to gain full Authorised service centre status for GCC in the UK. So do shop around for a good price but remember that the AppleTalk cable kits are extra.

I suppose that now you are wondering what price tempted me at the MacUser show. I did some scouting around the show and found prices down to £1099 + VAT. However when I went to the Mac & More (approved GCC dealers) stand I was offered the same printer for a special show only price of £1050 + VAT. This included two AppleTalk cable kits and delivery !.

I think my old boss would have approved after all.

Super Studio Session V2.1

Mike Dawson reviews the System 7 Update

Introduction

When System 7 appeared one of the casualties in the compatibility battle was my copy of Super Studio Session. Although it still worked after a fashion it did quirky things when trying to open documents. Now at long last Bogas Productions have come up with a System 7 compatible version which not only trounces these bugs but also offers some new features. I will only discuss these new features as the programme has not fundamentally changed. If you wish to read an earlier review please refer to the Volume 3 No.4 (August) 1988 article by Norah Arnold.

My upgrade came with two pieces of printed paper stapled together which passed as a manual for the new features. The first thing I discovered was something that I had long suspected and that was that the phase library file was incompatible with some virus checking utilities. The new phase library corrects this so Disinfectant will no longer call it a suspect file. Although this document claims to make this version compatible with system software versions 6.0.7 and system 7 I cannot check. I can report that it is System 7 compatible as I have been using it for some days now without a single problem. This new version is not System 7 Savvy and nor does it support balloon help. As the 'manual' claims that this version is compatible with the Quadra I assume it is 32 bit clean but again I have no way of checking.

Hierarchical Menu

This is purely the ability to switch the display to any sound track from a pull down menu located within the Edit menu. It is in addition to the usual method of clicking on the track number at the top left of the music track. The command key equivalents still operate as before.

Printing With Beaming

Super Studio Session now prints to both ImageWriter and LaserWriter printers with 'beaming'. Beaming allows groups of notes to be printed with beams instead of individual tails.

Individual Track Volume Control

This is the best of the improvements in this minor revamp. This new feature only operates on Mac II's or higher machines. On the lower Macs such as the Mac Plus this feature will not work at all. Volume control is added by inserting "volume" from the insertion pull down menu just like every other music control available. When it is selected a dialogue box pops up to allow the user to select the volume. Eight levels are selectable from this dialogue box.

Conclusion

At an upgrade price of US$ 36 including post and packing is not cheap as some I've had in the upgrade process. On the plus side there are some new features of which the track volume control is the most useful to me. When I upgraded a free copy of a song disk was included which makes the whole package a more reasonable buy. It is nice to see another American Software house supporting it's customers across the pond. If you wish to write to Bogas Productions then please note their new address printed below.

Product :	Super Studio Session v 2.1 Upgrade	
Publisher :	Bogas Productions	
Available from :		
	Bogas Productions	
	751 Laurel Street	
	Suite 213	
	San Carlos	
	California 94070	
Price :	US$ 36	
Value for money :	🍎 🍎 🍎	
Performance :	🍎 🍎 🍎	
Documentation :	🍎 🍎	

information

Hi Resolution Release Mac≈Bac : Easy Backup for System 7 Users

The market is full of backup software — so why have Hi Resolution chosen to release a backup Product? What does Mac≈Bac have that the others don't?

In order to stand out from other backup software Mac≈Bac had to satisfy a number of demanding criteria—

1. Ease of use — the programme should be easily usable by everyone in an organisation, from the secretaries to the Managing Director. Everyone creates valuable information on their machine, and this information should be protected against loss.
2. Automation — as far as possible it should be completely automatic. Hi Resolution have always striven for software that 'requires no user interaction'.
3. 'User-centred' — most companies will not want to backup complete machines, nor will they want to supply large quantities of dedicated hardware. Deciding what to backup is best left to the individual user. 'Travelling' machines present an additional problem for a 'global strategy' — the PowerBook user needs to backup when he's in the office, not overnight.
4. 'Low cost' — it had to be priced so that everybody can afford it.

Ease of use and user-centred requirement:

This has been solved in a number of novel ways. Rather than creating a new user interface Mac≈Bac makes use of the interface with which all Macintosh users are already familiar — the Finder. Mac≈Bac decides what to backup based on a file's label. This has many advantages—

- Nominating a file for backing up is a simple matter — assign a label from the 'Labels' menu.
- Seeing what's labelled is easy—just select 'by Label' from the 'View' menu. Users of colour systems can see in an instant what's labelled by its colour on the desktop.
- Finding labelled items is a breeze using the Finder's 'Find...' command.

Mac≈Bac has been optimised to backup to Finder mountable volumes. Since a backup using Mac≈Bac mirrors the folder structure of the user's disk, retrieving files is easily performed using the Finder.

Automation:

This was a more difficult problem — how is Mac≈Bac to know what needs backing up and what doesn't? The answer was an extension which automatically labels new files which you want backing up. By labelling a folder 'for backup' files created within that folder are labelled 'for backup' too. Label an application as 'for backup' and the files it creates will be appropriately labelled. An additional extension provides automatic backup at shutdown or restart, so you don't even have to perform a backup.

Low cost:

Single users can buy Mac≈Bac for £59. The price gets even lower the more you have i.e. £249 for a 5-user pack, £749 for 25 users, £1995 for 100 users.

In Conclusion:

Mac≈Bac fulfils its aims in making backing up so easy that it should actually happen. Mac≈Bac will be invaluable to any organisation running System 7 and to the single user who has more than one attached hard disk.

For more details, please contact Shaun Pratt, Hi Resolution, 0580 211194.

Comms Listserv and other jargon

By David Durling

As a fairly recent convert to the gobbledygook of communications via the telephone wires [comms] I thought it might be interesting to others if I explain something of how I got started and how I use the systems today.

I started out about three years ago with a BT Gold mailbox through the now defunct 'The Force' email and bulletin board system, with a slow 1200/75 modem, and have gradually upgraded. Originally, I ran *Access* comms. package on a IIe which is now used by my four year old son, so I use either a Mac IIsi or SE running *Red Ryder 10.3* linked to a Pace *Linnet* 2400 modem [purchased from the club of course].

At the moment I am studying for a research degree by part-time study with the Open University. As such I have a need to talk to various staff at the OU Milton Keynes, including my supervisors, a helpdesk, the library etc., as well as discussing the nature of my work with other academics in the UK and abroad. Being some 240 miles distant from Milton Keynes ensures that I do not visit in person very often.

One of the first things I did following registration was to obtain a mailbox on the OU Vax Cluster. This provided a personal username and address [D_Durling@ uk.ac.open.acs.vax] on the Joint Academic Network [JANET] which is the general purpose network used by the majority of academic researchers in the UK as well as research companies. Connection to the OU Vax is by straightforward dialup using modem and VT100 emulation, and I have found that it has opened the door to a whole world of electronic communications. I will try to cover some of these areas in this article.

Recently, the OU has arranged for users like myself, who are not close to one of the regional access points, to be able to utilise the British Telecom Packet SwitchStream [PSS] Dialplus service thus bringing the OU VAX, JANET, and access to the international networks within reach of a local telephone call. For an external (and solitary) research student, electronic mail and other telephone-related services provide a means for discussion, advice, and news of developments in the subject area. From JANET, there is easy access via relays to

various international networks. During the rest of my research study, I anticipate that more use will be made of email, especially for developing and maintaining contacts with other researchers abroad.

All of the routine downloading and uploading of mail is now fully automated via Red Ryder macros. A typical sequence is started by clicking the MAIL button, which dials up, responds to prompts for username and password, performs various file manipulations, downloads all the mail as one document, deletes old mail and tidies up the VAX disk space, and logs off. A typical opening window looks likes the first screen below. All I then have to do is to open the document [which is double clickable as a MacWrite II file] and read the contents. As it comes through, mail looks something like that in the second of the two screens below.

The document is read from within MacWrite II and a typical screen is shown at the top of the following page.

Sending mail is performed in a similar way, except that after the macro button from Red Ryder automatically goes

through the logon procedure I send mail manually by clicking 'OU Mail Send' as shown on the next page.

JANET has access, through various gateways, into the networks around the world. Email to another person is as

```
tuesday (Converted)

   1      2       3        4        5        6        7

NEWMAIL

    # From              Date        Subject

    1 EDU.OHIO-STATE.ACS.O 23-MAR-1992  Graduate IT Programs
    2 EDU.OHIO-STATE.ACS.O 23-MAR-1992  RE: Flexible gradebook program /
templat

    3 EARN.USCVM::NEWEDU-L 24-MAR-1992  views of media/the medium is the
message

    4 EARN.USCVM::NEWEDU-L 24-MAR-1992  RE: Education in Media
    5 EARN.USCVM::NEWEDU-L 24-MAR-1992  Re: For whom the paper is written
    6 EARN.PSUVM::DESIGN-L 24-MAR-1992  ART: Color Theory: Meaning of
Color(s).
    7 EARN.USCVM::NEWEDU-L 24-MAR-1992  List Review Service
    8 EARN.USCVM::NEWEDU-L 24-MAR-1992  Re: writing for the professor
    9 EARN.USCVM::NEWEDU-L 24-MAR-1992  RE: Saturn School
   10 EARN.USCVM::NEWEDU-L 24-MAR-1992  Re: Go with the FLOW
   11 EARN.USCVM::NEWEDU-L 24-MAR-1992  Thanks

Page 2
```

```
 File  Edit  Service  Local  Customize

Procedure: list:Comms.:Red Ryder:Procedures:OU Mail send.PROC

 OU Mail                         Arkham 2400    TABBS         1   00:09:13
 OU Mail Send   OU MK 2400                EVP    MacBaud           $0.00
```

One list, NEW-LIST, advises of newly established lists, and these seem to be running at 2 or 3 per week.

The scope of available subjects on lists is enormous, ranging from the academically serious through the curious subjects to the ephemeral. Without making distinctions as to which category they fit into, included are specialist topics such as Morris dancing; Yiddish; Startrek; vampires; camels; and clothing optional (read nudist), but perhaps the most curious is the anonymous discussion on women's legs - this particular list will accept graphics in addition to text - or so I'm told.

Some conferences of interest to me are:

DESIGN-L: Basic Design (Art and Architecture)

MAC-CONF: The Macintosh Computer in the University. (Additionally, there are several Mac-related general lists dealing with programming, system software etc. as well as lists dedicated to narrow subject areas, also communication between Macintosh developers of commercial, in-house, and shareware software.)

MMEDIA-L: The Multimedia discussion list has been opened in order to provide a forum to discuss this growing field in education and training.

From the networked conferences so far tried, three have been selected and used for several months due to their high quality of discussion, advice, moderation or appropriateness to the subject. These are as follows:

EDTECH: Educational Technology. Although the whole field of educational technology is covered, much discussion centres around the new technologies, with computers and computer assisted learning figuring prominently at times.

HYPERCRD: HyperCard discussion. This is dedicated to discussing HyperCard, and has the support of not only a large number of experienced programmers from the academic world, but also from commercial software development including Apple Computer. Discussion is usually at a technological level but the response to questions asked about programming tips, bugs and other advice is generally rapid, voluminous and excellent.

NEWEDU-L: New paradigms in education. In searching for new paradigms in education, participants often refer to computer-mediated learning through either conferencing, on-line support or CAL. Some of the recent discussions (for example: what is an educated person?) have been of particularly high quality. A typical dialogue is shown on the following page.

Recently, one of the first electronic journals has come online through the listservers. The *Journal of Technology Education* is a refereed scholarly printed journal which has initiated simultaneous publication of an electronic edition with its first issue of 1992. This new publication also includes graphics, and is 'published' twice a year. Although it is free, the electronic version apparently poses no threat to the print journal which is still expected to sell in the same quantities as before.

simple as prefixing their personal UserName@Address with the gateway. For example, many recipients in the USA are on BITNET which is accessed through the EARN-RELAY, a gateway handled by the Appleton-Rutherford Laboratory here in the UK, and received [I think] through the State University of New York. So a typical SEND instruction typed at the keyboard might be:

SEND: EARN-RELAY"Joe_Bloggs@UTVMS"

Time taken for messages to get through to their destinations varies considerably according to day, time of day, and the extent of gateways and networks. From what I have observed, during peak periods ie office hours, it can take up to an hour to get through, whereas on a Sunday afternoon it is sometimes only a few seconds to obtain an automated reply.

Listserv

Apart from their use for normal inter-personal email, there are mail servers on most of the networks throughout the world. These are simply software which distribute mail to a distribution list. A useful and typical function of mail servers is computer mediated conferencing. Typically, an email message is sent from a contributor to the server, from which it is subsequently distributed to all members of that distribution list. In this way ongoing conferences are held, albeit asynchronously, and the mail servers are also used as bulletin boards to announce items of interest to that group, such as live conferences, book publications, new software etc. Inevitably there is a strong North American bias to these conferences as they are often hosted by USA Universities, but participation by foreign scholars is widespread.

Listserv is a widely used mail server and can be used from JANET. On Listserv a bulletin board or conference is known as a 'list'. At the present time there are over 300 listservers worldwide, each supporting several lists covering many subjects: the raw text list of lists kept at Dartmouth is, when downloaded, over half a megabyte - that's a big file.

Participation

From time to time, I have joined in with discussions on lists, both as a questioner and as a commentator in the

```
Date: Thu, 17 Oct 1991 14:42 GMT-0300
From: EDUARDO CHAVEZ - UNICAM <CHAVEZ@bbvax.unicam.nsw.edu>
 Mike Redell observes:
> It is with that in mind that I ask those of you who are interested
> to engage with me in a quest for a definition of an educated
> person for the Information Age.  This, I don't think, will be a
> simple one sentence or one paragraph definition, but could
> become a well thought out statement on the kinds of skills,
> knowledge, attitudes, etc. that will allow a person full membership
> in his/her society.

Here is what I consider a list of abilities that people will need
to have to live and work in the Information Age:
- The ability to perceive in a sharp and focused manner
- The ability to speed read with understanding
- The ability to establish relations, infer and deduce
- The ability to assess and evaluate information
- The ability to retain essential information in memory
- The ability to easily find information that is not memorised
- The ability to organise and file information
- The ability to retrieve and communicate information
- The ability to define goals and priorities
- The ability to manage time
These are some of the abilities people need to develop if
they are going to avoid being functionally illiterate in
the coming years. Technology can help? Undoubtedly. But not
if it continues to be used in the ways our schools use them today.

Eduardo CHAVEZ

+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
+ Eduardo Chavez        Bitnet:    CHAVEZ@GRC.BITNET            +
+ Casta Postale, 9009   Internet:  CHAVEZ@BBVAX.UNICAM.NSW.EDU +
+ 3456 Pompanos, SP     F/Phone:   +66-789-45-0097             +
+ Chile                 FAX:       +66-789-45-0096             +
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
```

discussion. It is an interesting way of not only becoming known to others in the field, but also of 'publishing' short papers and obtaining rapid feedback. It is anticipated that electronic conferencing will continue to be significant in this study and that more participation will be had in future, not only with these lists but also with appropriate other lists.

Other comms

In a different role, but nevertheless useful, are other email or bulletin board systems such as

TABBS, our very own BBS and well worth supporting. I have been known to also use MacTel and MacBaud, albeit infrequently.

Summary

With simple extra hardware and a comms. package, there is a fascinating world out there for those who will try. I found it a little intimidating at first, simply because of the alien jargon [stop bits, baud rate, duplex etc. etc.] but these apparently daunting technological aspects can be mastered with just a little perseverance.

I now look forward to the technology getting faster and easier to use, and the networks spreading......

Far Side Calendar v First Things First

a comparison by John Beattie

At first glance, these two programs seem to offer the same facilities. Far Side Calendar is as near to a computer simulation of the classic desk diary with a different cartoon to brighten each day as I've seen. Being computer based, however, means you don't have to restrict yourself to a single layout but can switch between "page a day", "week a page" and "month a page" views at will. You can enter appointments or reminders in the diary, allocate them a pretty, animated icon and create an alarm to go off to warn you that the appointment is due. Print-outs can be made of the week, month or day once your appointments have been entered.

And that just about sums up the Far Side Calendar, except for the wonderful, one-a-day Gary Larson cartoons and the random animations which can wreak havoc on the serious side of your day. You either love Gary Larson (I do) or hate him. There are 365 daily cartoons and there is the promise that when you run through these you can buy another data disk of a further 365. The program comes with graphics for small and large screens but although there are colour elements to the program, it was a great disappointment to me that the cartoons themselves were in black and white.

On the other hand, First Things First places a clock on your desktop - either a small, digital one on the menu bar or a larger floating one anywhere on the screen - and double-clicking on these brings up the program itself and lets you set up two types of events: Things to Do and Reminders. Reminders generate on-screen timed alerts which can be set to go off every so many minutes, hours, days, months or years - or to go off on some day each month chosen from the on-screen one month mini-

calendar.

Things to Do can be allocated a specific time and date but differ in that they don't generate on-screen alerts. You can then show in the program's main window: just Reminders, just recurring Reminders, just Things to Do - or all three. You can assign both Reminders and Things to Do to categories or types of events which you define yourself, assign them priorities from one to four within each category and you can display one, several or all levels at once. For each of the categories, you can display all items, all uncompleted items, or the items due today, this week, this month or over a specified time period. In each display, items are shown arranged by date and time or priority. I particularly like the fact that the week and month displays show the week from today and the month from the current date rather than the calendar week or month in which the current date lies. All these lists can then be printed in your choice of font. Reminders are indicated by a user-selected alarm and a flashing icon and, when these occur, you must click on the clock icon to read the message and either turn off the alarm or "snooze" it.

First Things First, being an Extension and having its icon always available on the desktop, is both easier and quicker to access than Far Side Calendar, even if you set up Calendar to be a desk accessory under system 7. It is also more flexible and altogether much more useful. But it doesn't have the cartoons. Now, if only Far Side Calendar could simply be a start-up add on which showed each day's date and a cartoon on start-up, leaving First Things First to do all the hard work of organising your day, you would have the best of both worlds.

Far Side Calendar is by Amaze Inc. It comes on 4 800k discs and requires at least System 6.0.5 or later, a Mac Plus or better and a hard disk with a minimum 1MB.

First Things First is by Visionary Software and runs on any Macintosh with at least 1MB of RAM and System 6.0.4 or later.

Claris
Announcements

Claris Introduces FileMaker Pro 2.0 for Windows and Macintosh

Claris Corporation have introduced FileMaker Pro 2.0 for Windows and Macintosh, providing power without programming to database users. FileMaker Pro for Windows is the first database product to deliver the graphical user interface (GUI) benefits of Windows to a broad base of users. The new Macintosh version adds more than 50 new features, including much more powerful scripting, extensive System 7 capabilities and multimedia support, to the number one database manager for Macintosh.

The new product is the second Windows application from Claris, the software subsidiary of Apple Computer, Inc., and the first one developed internally. Last autumn, Claris acquired Hollywood, the award-winning Windows presentations software.

With its superior GUI and sophisticated database power, FileMaker Pro 2.0 provides the tools, high-quality output and immediate productivity that Windows users most want. Since no programming knowledge is required, even new users can be immediately productive - yet power is not sacrificed for ease of use. FileMaker Pro 2.0 provides advanced features not otherwise available without hiring a professional database consultant: cross-file look-up capabilities, extensive graphics tools and unmatched workgroup solutions that let individuals and workgroups effectively manage, present and share information.

FileMaker Pro was designed for managing the information of small businesses and corporate workgroups. For workgroups with mixed PC/Macintosh computing environments, FileMaker Pro offers a new standard in platform transparency. The Macintosh and PC versions not only look and feel the same, they also work together transparently across a network.

According to Joanna Salecka at UK market research firm ROMTEC, Windows database products accounted for 9% of overall database software sales in March 1992. However, their market penetration is expected to climb quickly to 29% by 1993 as Windows versions of popular database packages are released.

Positive Early Feedback

Evaluation software is going to Windows sites, Macintosh sites, and sites with mixed environments. Positive feedback is already coming back from preliminary beta sites.

"A company wide multi-platform interface capable of performing highly complex tasks at the click of a button is truly revolutionary," said Peter Makin, Managing Director of UK-based applications developer Makin Rochard Limited. "This, coupled with FileMaker's inherent flexibility makes it the only logical choice for small company or interdepartmental data manipulation. Savings to our clients in both training and hardware will be significant."

Steve Novak, Managing Director of UK-based Clarity Ltd., produces a range of FileMaker Pro templates for accounting, lead tracking, project tracking, dental surgery management, price list management and food design. "Combined with the powerful layout facilities, FileMaker Pro's scripts enable Clarity's databases to produce quality management reports with the minimum of effort," said Novak. "Complex data manipulation and reporting can be carried out even by novice users. Repetitive tasks can be quickly automated and undertaken by simply clicking on a graphic button. It has never been as easy to store, manipulate and retrieve valuable information."

Accessible Database Power

FileMaker Pro brings new database powers to the user level through its unique set of customisation tools. Without the help of a programmer, users can set up a database tailored for their specific needs.

ScriptMakerTM, FileMaker Pro's revolutionary mouse-driven scripting capability, allows users to automate routine tasks, menu operations and procedures without syntax or compiling. Users simply select desired steps and specify options from scrolling lists and pop-up menus. User-definable buttons can be used to further customise the operation and the appearance of files. Custom field formats such as radio buttons, checkboxes and pop-up lists speed data entry. To help new users get started quickly, FileMaker Pro also includes professional pre-designed templates for common business functions such as invoicing, mail lists and lead tracking.

A typical user will find that professional-quality data entry and report forms can be created quickly without extensive training. Intuitive built-in page layout capabilities and graphics tools that a user would expect from an object oriented graphics product simplify the process of report design. In addition, FileMaker Pro supports popular graphics file formats so company logos and high quality graphics can be easily imported. Multiple layout and mail merge capabilities make it simple for users to arrange their information. The automatic layout generator even includes more than 50 pre-formatted Avery labels to speed the task of printing labels.

FileMaker Pro also includes several features for managing data, such as a versatile search function and unlimited sorts. Data lookup capabilities link data between related fields to avoid repetitive data entry, and built-in file utilities backup, compress and make templates of existing files. A variable field length allows up to 64,000 characters in a formatted text field.

A Breakthrough in Cross-Platform Computing

For the increasing number of businesses where sharing information among PCs and Macintosh systems is crucial, Claris has defined a new standard for how applications should work cross-platform. The Windows and Macintosh versions share 85 percent common code and were designed to look and work alike. This has enabled the greatest possible interoperability and will make support and training much easier than for any other cross-platform applications.

FileMaker Pro for Windows and FileMaker Pro for Macintosh share the same file format so databases created on a PC or a Macintosh can be run on either platform without modification or translation. Windows and Macintosh users can simultaneously share layouts, scripts and graphics, update common files and lookup data across the network painlessly. When multiple users are sharing data, instant file updating automatically reflects changes made by any one of the users. Record locking ensures data integrity by preventing more than one user from modifying a record at one time. And data security is maintained with unique network access overview controls and comprehensive multi level password protection that allows specific layouts and even fields to be protected.

FileMaker Pro also comes with robust, multi-user capabilities built-in. By simply selecting multi-user from the menu, FileMaker Pro is ready to share files across the network.

Optimised for Windows and for Macintosh

FileMaker Pro for Windows and FileMaker Pro for Macintosh are similar where they should be similar, and optimised for each platform where it makes sense. Windows users will find that FileMaker Pro 2.0 strictly conforms to all Windows user interface guidelines and supports many specific Windows features such as:

- Multi-user data sharing utilising Windows Dynamic Link Libraries to support Novell NetWare and PhoneNet Talk Networks
- Support for TrueType, Bitstream Facelift and Adobe Type Manager (ATM) fonts
- Sound input with Windows 3.1 and appropriate sound cards such as Creative Labs Sound Blaster
- Context-sensitive help using the standard Windows Help system
- Data import capability from popular DOS, Windows and Macintosh formats.

FileMaker Pro 2.0 for Macintosh also takes advantage of capabilities specific to the Macintosh system. In addition to the new scripting powers, data management capabilities, and workgroup features it shares with FileMaker Pro for Windows,

the new Macintosh version also offers:
- Full System 7 support: - Apple events capabilities - QuickTime support - Data Access Manager support
- Spreadsheet links with Claris Resolve and Microsoft Excel.

Availability

Both the Windows and the Macintosh versions of FileMaker Pro 2.0 will be available in the autumn, 1992.

Exclusive UK distribution is through Frontline Distribution Limited, Intec 1, Wade Road, Basingstoke, Hants, RG24 ONE. Tel: 0256.20534. Exclusive distribution in the Republic of Ireland is available through MicroWarehouse, Unit 3, City Gate, 6 Bridge Court, Dublin 8, Ireland. Tel: (353)1 - 6790055.

For upgrade order forms and information in the UK telephone Freephone 0800.929005. Users in the Republic of Ireland should phone Freephone 1800.732732.

Claris Ships MacDraw Pro 1.5

Claris Corporation have announced that MacDraw Pro 1.5 software, the high-speed upgrade to the best-selling graphics program for the Macintosh, is now shipping and available at authorised Claris dealers in the UK.

The new version offers up to four times the speed of Version 1.0 and exceeds the Macintosh graphics performance standards set by MacDraw II. Major performance enhancements within Version 1.5 include user-controllable memory buffering and display options that improve the speed of on-screen display and printing, allowing for improved interactivity and handling larger-scale design and drawing tasks on a greater range of Macintosh CPUs.

Full System 7 support — including QuickTime, Publish & Subscribe, and Apple events — further bolster MacDraw Pro's position as the leading graphics solution for presentations and for workgroup environments.

Up to 4 Times Faster than Version 1.0

MacDraw Pro 1.5 speeds graphics creation with several improved performance factors:
- Text entry and redraw is up to four times faster, without any loss of accuracy.
- Text printing is from two to five times faster.
- "Fast gradient" display is up to five times faster than the "Best Quality" display. Gradient can be tuned to the resolution of the output device.
- Other optimised functions — which are from 20% to 200% faster — include drawing, scrolling, rotating, and object selection.
- Greeking options allows users to display placeholders for complex graphics and text and image objects providing significantly faster redraw performance within detailed documents.

Full System 7 Support

MacDraw Pro 1.5 new System 7 features include Publish/Subscribe capabilities, Apple events, QuickTime support, Balloon Help, and TrueType. Complete Publish/Subscribe support includes the ability to publish partial or complete objects from a user-specified combination of layers.

MacDraw Pro 1.5 users may now publish graphics, i.e., logos and charts, that are created in various applications and shared within a workgroup. In addition, users may also subscribe to charts created in applications such as Claris Resolve and other spreadsheet applications for more effective workgroup computing.

With Apple events users can "drive" MacDraw Pro from other applications, such as the HyperCard program. A sample HyperCard stack that works as a timed slide-show controller is included with MacDraw Pro 1.5.

With QuickTime, users may enhance on-screen presentations with video, animation and sound.

Continued Strengths of MacDraw Pro 1.5

Since its inception, MacDraw has continually set the standard for business graphics on the Macintosh, making it the number-one choice of Macintosh users. Today, MacDraw Pro 1.5 features extensive colour support, state-of-the-art file exchange capabilities and leading edge gradient fill and text handling capabilities. New users will appreciate the familiar Claris family interface, including zoom tools, a favourites tool

bar, the text ruler, and tear-off palettes. Professionals can take advantage of 32-bit colour QuickDraw, PANTONE MATCHING SYSTEM colour support and extensive, customisable gradient options.

In addition to general purpose drawing and graphics tools, MacDraw features on-screen slide presentation capabilities. The layer/slide support allows users to copy and paste multiple slides from one document to another for easier presentation management.

Pricing and System Requirements

The suggested retail price for MacDraw Pro 1.5 remains the same at £325. Current MacDraw Pro 1.0 users may update to version 1.5 for £15, excluding VAT. MacDraw II users may upgrade for £175, excluding VAT and shipping.

For upgrade order forms and information in the UK telephone Freephone 0800.929005. Users in the Republic of Ireland should phone Freephone 1800.732732.

System requirements for MacDraw Pro 1.5 include a Macintosh Plus or later model, a hard disk drive, 2MB RAM, and System 6.0.5 or higher. For System 7 capabilities 4MB RAM is required. For colour, 32-bit QuickDraw is required.

Claris to Sell and Support HyperCard Developers Kit

HyperCard, the leading solution for creating custom Macintosh software, will be sold and supported by Claris Corporation throughout Europe beginning this month, according to an announcement by Claris and Apple Computer, Inc.

HyperCard lets commercial, corporate and educational software developers create a broad range of solutions — including multimedia, educational, remote database access, and CD-ROM access products.

Claris took over responsibility for HyperCard from Apple Computer Inc. in late 1990, but until now, HyperCard has been sold and supported by Apple throughout Europe.

Claris, a leading developer of Macintosh software, is committed to ongoing HyperCard development, and will offer enhanced versions over time. This commitment, plus developments Claris has already added to versions available in the US, will benefit HyperCard developers of all levels.

With HyperCard's transfer from Apple to Claris, Claris will now sell and support the HyperCard 2.1 Developer Kit in Europe. This new product features these significant enhancements beyond the current HuperCard 2.0 product previously available in Europe:
- **QuickTime Support** — HyperCard's QuickTime Tools enable developers to incorporate QuickTime movies into their stacks with point-and-click ease.
- **Apple Events Support** — enables HyperCard to communicate with other Apple Event-aware applications on a network or single machine.
- **Script Language Guide** — a comprehensive guide to advanced HyperTalk scripting.
- **Upgrade Path to Future Product Revisions.**

The Claris HyperCard 2.1 Developer Kit will be sold in an international English version directly from the Claris distribution centre in Dublin, Ireland.

HyperCard 2.1 Developer Kits will be priced at £99, excluding VAT and shipping. For customers who purchased the Apple HyperCard 2.0 development edition through an Apple dealer, a special upgrade to the Claris HyperCard 2.1 Developer Kit is available for £49, excluding VAT and shipping. Proof of purchase will be required to qualify for this upgrade. Those who received HyperCard 1.X, 2.0 or 2.1 free with their Macintosh computer will need to purchase the full-price version. Apple will continue to provide special offers for the sampler version of HyperCard 2.1 in Macintosh computers sold in most countries through 1992.

U.K. and Republic of Ireland customers may order the HyperCard 2.1 Developers Kit by calling or writing Claris HyperCard Service, P.O. Box 2935, Dublin 1, Republic of Ireland, Tel.: 010.353.1767814.

For further information contact Dan Rampe at Claris UK, tel.: 081 756 0101

DataPivot

Geoff Wood reviews this reporting tool from Brio Technology, inc.

Do you compile reports from database information? If so, DataPivot may be just what you need. It's a very ingenious program. Tasks that would take hours or many minutes with most database or spreadsheet programs can be done in seconds with DataPivot.

The program occupies 580K on disc but has a suggested memory size of 1,400K. It comes from a company called Brio Technology, Inc. The 135 page manual is easy to follow and has a good tutorial but the index is poor.

The tutorial uses an Excel database table showing sales of wine by Year, Quarter, Winery, Grape, Region, $ per Case, Cases Sold and total Sales. I found that if you multiply the number of cases by the unit price, the answer is different from the figure in the Sales column. This is because the $ per case figure has been rounded off to the nearest $. However, this need not detract from using the data for illustration.

With DataPivot you can compile, print and save a report in the form of a table showing, say, the years and quarters as headings across the top and the wineries and regions as headings down the left hand side. Each cell in the report table would then show the total sales or the number of cases by winery, region, year and quarter.

After starting up, DataPivot displays an empty Pivot report window with provision to display heading labels across the top and down the left hand side. To the left of the window is a vertical palette with various icons for entering the headings and data into the report window. Alternatively, there are commands in the Build menu to achieve the same result.

The Import command in the File menu lets you open a database file which must be in the form of a table. DataPivot displays the data in a window (called the Source Window) rather like a spreadsheet with the field names as column headings and the first few records as rows of data. You can scroll through the Source Window to see other records if you wish.

You can also add another column with a computed field, e.g., Sales/1000 to show Sales in thousands of dollars.

The illustration shows part of the Source Window with eight columns for the fields and one row for each record. It also shows a Pivot report based on the data in the Source Window.

To compile the report, the first step is to click in the Year column in the Source Window to select it, then click the Top Label icon in the palette to enter the year headings across the top of the Pivot window. DataPivot scans the data in the Year column to see how many different years are represented. It then displays the relevant headings, 1990 and 1991 in this case.

The next step is to select the Quarter column and click the Top Label icon again to enter a series of sub-headings (Q1, Q2, Q3 and Q4) below each of the Year headings.

Then select the Winery column and click the Side Label icon to display the two winery names down the left hand side of the Pivot window. Then select the Region column and click the Side Label icon again to display the four regional headings in alphabetical order, East, North, South and West for each winery.

Finally, select the Sales column or the Cases Sold column and click the Report Data icon to display the figures duly analysed by Year, Quarter, Winery and Region.

DataPivot also allows you to limit the analysis by excluding specified data, e.g., Sales less than £20,000. Thus you could compile two versions of a report, one for Sales of small lots, the other for Sales of larger lots.

Of course, some database programs can compile the type of report illustrated but not as easily as DataPivot. It would be quite difficult to compile the report with Excel's facilities.

But the strength of DataPivot lies not just in its speed and ease of operation in compiling the report but also in its ability to rearrange, reorient and rebuild reports almost instantly.

For example, you can transform a report table simply by

File Edit Build Gadget Font Style **Preferences**

Wines Report

		1990				1991			
		Q1 Sales	Q2 Sales	Q3 Sales	Q4 Sales	Q1 Sales	Q2 Sales	Q3 Sales	Q4 Sales
Beaulieu	East	174,781	183,675	197,374	203,003	192,569	195,356	202,915	201,164
	North	176,130	190,139	200,752	212,283	194,413	197,186	203,075	207,501
	South	133,272	135,708	130,162	145,881	120,356	121,497	124,603	138,700
	West	132,932	134,554	140,184	149,114	119,882	124,106	122,680	127,700
	TOTAL	617,115	644,076	668,472	708,281	627,220	638,145	653,273	675,065
Duckhorn	East	71,194	71,342	71,935	74,012	130,522	130,818	132,004	133,043
	North	127,555	128,445	130,077	132,004	74,160	74,457	75,347	75,643
	South	91,068	91,365	92,107	95,221	43,013	43,161	43,754	44,644
	West	40,788	41,530	42,271	42,864	90,475	91,661	91,810	94,925
	TOTAL	330,605	332,682	336,390	344,101	338,170	340,097	342,915	348,255
TOTAL		947,720	976,758	1,004,862	1,052,382	965,390	978,242	996,188	1,023,320

Wines

Year	Quarter	Winery	Grape	Region	$/Case	*Cases Sold	Sales	
1990	Q1	Beaulieu	Cabernet Sauvignon	North	$165	450	$74,160	
1990	Q2	Beaulieu	Cabernet Sauvignon	North	$165	550	$90,640	
1990	Q3	Beaulieu	Cabernet Sauvignon	North	$165	575	$94,760	
1990	Q4	Beaulieu	Cabernet Sauvignon	North	$165	650	$107,120	
1990	Q1	Beaulieu	Cabernet Sauvignon	South	$145	520	$...	

144 of 144

dragging the right hand end of a heading downwards. As you do so, the heading bar pivots about the left hand end until it is transformed from the horizontal position to the vertical. When you release the mouse button, the headings are rearranged and the numbers in the cells are instantly recalculated. Now you can understand why the program is called DataPivot. The headings can be pivoted about the top left corner from horizontal to vertical or vice versa.

Moreover, you can change sub-headings to main headings and vice versa. You simply drag the end of a horizontal heading up or down or drag the foot of a vertical heading to the left or right. Instantly, the headings are rearranged and the numbers in the cells are recalculated.

DataPivot can also calculate and display totals for headings or sub-headings. You just select the heading for which you want totals then click on the Total icon in the palette. New columns or rows are inserted where appropriate and the totals are displayed. There's also a facility to display the difference between adjacent columns or rows, either as a number or as a percentage.

You can also group two or more rows or columns into one row or column. Just select the headings of the data you wish to merge then click the Group/Ungroup icon (the paper clip icon). You can also exclude some data from a report by selecting it and then clicking the Remove icon (the trashcan icon).

Having created a Pivot report, you can change the format of the headings and cell contents. There's a choice of 32 number formats including commas, $, % and date/time formats but you can also create your own formats so you can show £ signs. Text can be formatted in any available font, in bold, italic, underlined or overlined, aligned left, centre or right.

You can change the text in the headings, if you wish. You can also add or remove horizontal, vertical or grid lines to the Pivot report and to the Source Window.

In the Print Preview mode, you can change the contents of the header and footer, apply page numbers and the date/time. Indeed, you can have more than one header and footer per page. You can also set page breaks before or after selected labels. However, I could find no way to centre the table on the page as you can do with Excel and other programs.

DataPivot can import any file of rectangular data in one of the following formats: BIFF, SYLK, WKS, and Text (either tab or comma delimited). It can also export data in any of these formats. (Exporting is not the same as saving the DataPivot report itself.)

DataPivot supports System 7's Publish and Subscribe commands. It also has balloon Help.

The tutorial ran very fast on a Quadra 700 and quite fast on a Mac IIci but the manual does say that it may run slowly with a very large data set or limited RAM. If so, there is a Draft Report option which hides the Report Data part of the Pivot window so that it responds more quickly when you add or rearrange labels and label bars . You can also close the Source Window as soon as you have built your report. The palette has an icon for re-displaying the Source Window.

At a list price of £195 plus VAT, DataPivot is not cheap but it could be a very good buy for people who need its powerful facilities.

DataPivot is ditributed in the UK by Principal Distribution Ltd., available from local Apple dealers.

UltraPaint 1.02

A review by Dave Edmondson

UltraPaint combines object based drawing and bitmap/pixmap painting in a neatly integrated package which takes little effort to absorb and contains several good ideas that should have been around for ages. The package comes on three disks, one for the program which is over 750k, one for 500+k of external tools and one for examples. The manual is ring bound and takes a bit of assembly but it is well worth the effort with about 430 pages of user guide, tutorial and reference with good contents pages and a 22 page index.

For those unfamiliar with Mac graphics packages "paint" refers to bit mapped graphics where the document is like a sheet of graph paper with some of the squares filled in, the various tools fill in or rub out squares. Drawing is different, what the program saves is a specification for how to draw each of the things that you have created. Drawings sometimes make use of bezier curves which are a way of defining a curve by two fixed end points and two control points. In some ways drawing gives less freedom than painting but it is easier to modify and scales and prints better. Each is appropriate in the right circumstances.

Layers, bitmaps and objects

Launching UltraPaint brings up a title screen which reports the available memory and the System version and lists the external tools as they are loaded. This gives way to the document window and palettes for tools, external tools and attributes. At the bottom left of the document window the name and type of the current layer are shown, you can have up to eight layers, drawing, painting or composite, by default you get one of each. Clicking on this area brings up a pop-up menu of available layers and the layer manager which allows you to create, delete or name layers and specify whether they are painting, drawing or both; layers can be made invisible or grayed out.

Flipping between the various default layers changes the contents of the tools and external tools palettes as shown in fig. 1. Some of the tool icons contain additional symbols,

the two down arrows mean double-click to bring up a dialogue box and the right arrow means click and hold down for a pop-up menu, these can be used to control brush shapes etc.

The revelation here is the composite layer which is so slick that it took me a while to realise what I was doing with it. If you select a paint only tool and click in the document window you create a new paint object or modify an existing one if your click was within it. The paint object stays active, shown by cut down handles, until it is deselected by the arrow tool. It can be re-activated by double clicking. Tools which can be used for bitmaps or drawing will behave as drawing tools unless they are used on an active paint object. The only tool which is appropriate only to drawing is the bezier tool, if you try to use it on an active paint object it deactivates it.

Attributes

The attributes palette applies to all modes and allows the selection of pen and fill patterns, foreground and background colour, horizontal and vertical line thickness, line dashes, arrowheads, pen mode and viewing scale. Pen mode is the only item which needs explanation, this controls the way in which things appear when they overlay other graphics. As the options are logical operators they can be shown by a set of truth tables but a little experimentation is more useful, in fig. 2 for example, drawing the grid in "xor" rather than "copy" mode allows it to show up over the black rectangle although it loses the intersections.
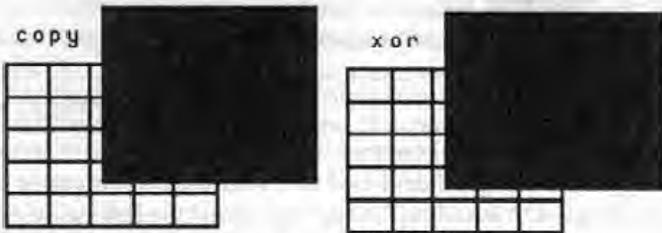

Fig. 2. Pen modes can be useful.

Drawing, painting and external tools

The standard tools are much like the original MacPaint and MacDraw items with the addition of a bezier tool, the external tools extend the set and allow for future expansion. External tools are kept in separate files and loaded at launch time, some are available from menus, others from palettes. The idea is to be able to enhance the facilities without having to release a new version of the complete program. Unfortunately Deneba don't seem keen to make the external tool interface public so unlike HyperCard there will not be a steady stream of third party externals for UltraPaint.

The externals for drawing cubes and grids are very useful but for sheer fun the three colour airbrush takes some beating. This gives control of overall flow and for each bucket you can control the colour, pattern, spray area, relative flow, splatter size distribution and style. When used in combination with the quill external which draws thicker the faster you move it some pretty good Steadmanesque results can be obtained. Another facility which works with all the paint tools but is particularly useful with the airbrush is masking. Any selection can be made into a mask or added to / subtracted from a mask; you can also save masks for later use or invert them.
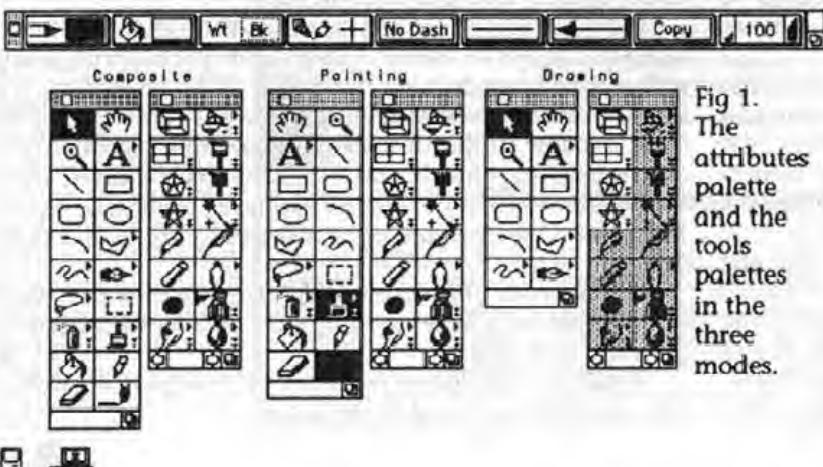

Fig 1. The attributes palette and the tools palettes in the three modes.

Fig. 3 Masking

The water drop and smear tools soften and blend edges by various methods such as shuffling pixels or dragging copies of an area. Along with the luminance, sharpen/blur and contrast effects these can be useful for retouching scanned images. Although they work best with colour or greyscale images the program makes a good attempt at using them on one bit pictures as well.

Autotracing from bitmaps to draw objects is well implemented, perhaps the easiest and most effective such offering I've seen. Particularly good is the sample area in the configuration dialogue which shows how the current settings would work on a sample bitmap. You can autotrace to smooth polygons, beziers or polygons which is useful for making a bitmap image into something more scalable.

The drawing tools are also a well implemented set of fairly standard tools with a few extra flourishes. It's worth double clicking on a draw object because something will probably happen, text objects go into edit mode as do beziers and polygons. Cubes produced with the cube external have an edit mode where handles become available in the middle of each face, to show which handle goes with which face the edges of the face highlight when the cursor is over the appropriate handle, clicking and dragging then lets you move the face. The control handles for reshaping arcs and rounded rectangles are available whenever the objects are selected.

The freehand drawing tool, like autotracing, can produce beziers, polygons or smoothed polygons. With all three the points can be edited, deleted or added to later. Curves can also be split and joined, joining a polygon to a bezier makes the whole thing a bezier while joining a smoothed polygon to a polygon creates a half smoothed hybrid.

Colour and Greyscales

I did not get much of a chance to use the colour facilities but I soon found that you really need a lot of memory for it. Having allocated enough space the fun begins, all the tools work the same way with colour, it's just that colour takes over from the patterns or halftone shades available in black and white. The graduated filling tool becomes almost psychedelic and the 3 colour airbrush gets really out of hand if you let it. I'm told that the price of quality colour printers is coming down, I do hope so.

I was disappointed that I couldn't work out how to convert a 1 Bit TIFF image into a greyscale image, either I was doing something wrong or the manual was fibbing. Opening a greycale TIFF image let me try out the brightness, contrast and sharpen/blur tools which all behaved as expected. A useful feature for making composite images is

the"Fuzz Lasso Edges" tool which, with the smear and waterdrop externals, helps tidy up the joins.

Interface

Unlike many big programs the interface is consistently good. Whenever possible dialogues contain examples of the configuration produced. Cursors change helpfully, for example the arrow changes to a small cross when over a handle or to a four way arrow when dragging an object. Many processes use a watch cursor the face of which fills clockwise to black to give an idea of time to completion and a rotating ring of points to show that things are still happening.

If you drag a complex object in a hurry you will probably just drag an outline of it's bounding box, if you click and pause slightly the whole object is dragged. Like the composite layer this works so neatly that it takes a while to realise what it's doing because if you start dragging quickly you probably weren't too bothered about precise positioning anyway. If you have a drawing tool when you select the File menu "Select All" appears as "Select All Rectangles", or whatever. There are many such touches, most of which probably go unnoticed.

Best of all are the error messages which give a full explanation and suggested remedies. After generating the example in fig. 4 by some furious duplication the offending multitude of objects was deleted and UltraPaint carried on happily. That's what I call error handling.
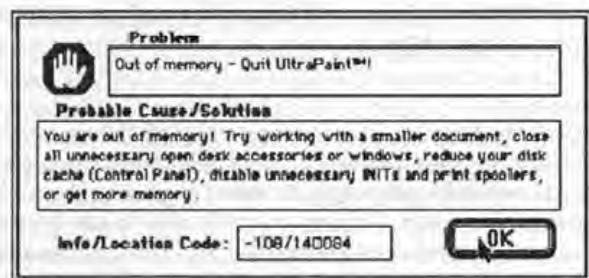

Fig. 4. Error message.

Conclusion

UltraPaint is one of the most complete and well thought out packages I've come across, it does what you want it to and it fits like a glove. It tackles all aspects of 2D graphics competently enough to be the only graphics package that most people would need, it performs particularly well at bread and butter black and white painting and drawing. I'm hooked, I wonder if they do an educational site licence.

Dave Edmondson: Internet: davide@dcs.qmw.ac.uk

AppleLink: davide%dcs.qmw.ac.uk@INTERNET#

Product :	UltraPaint
Publisher :	Deneba
Available from :	
	MacLine
	123 Westmead Road
	Sutton
	Surrey SM1 4JH
	Tel. 081-642-2222
	Price : £125 + P&P & VAT
Value for money :	ü ü ü ü ü
Performance :	ü ü ü ü ü
Documentation :	ü ü ü ü ü

information

Educational Games

Software review by David Durling

1 Easy as ABC
Multiple skill level games for children aged 2 ¹/₂ to 6
Introduction

These two sets of games are apparently suitable for both Macintosh, Amiga, and MSDOS machines. This review refers to the Macintosh version.

The basis of the trial, which lasted for several weeks, is that my four year old son, Caius, together with his friends, used the games freely. He is used to games on his Apple IIe, and I understand that that some of the other children had experience of games computers, but none of them Macs.

The software is copy protected and must be run as the startup disk using its own system file. Unfortunately it would not run on my IIsi therefore I have not seen these games in colour. All the tests were done on an SE, from the keyboard of which I am still finding bits of sweets, biscuits and other sticky things......

Easy as ABC

This collection of games aims to let children have fun while learning the alphabet. The first frame is a picture menu allowing the the child to select a game. Throughout the games there are various animals which are generally well drawn. Sound may be turned on or off, although it is necessary to have sound on to obtain the full interaction, but there is only one volume level - and it is annoyingly loud! One good feature of all the games is that either caps or lower case may be selected. Briefly, the individual games are as follows:

Match Letters: A straightforward game. The computer generates a word, you have to match it by picking up letters and putting them in the right places. This game does allow the child to at least become familiar with the keyboard.

Dot to dot: Apparently randomly positioned letters have to be joined together by clicking at them in alphabetic order. When all the dots are joined, an animal is drawn from the outline.

Honey bee: This game is easier to do than to describe. A bee (complete with animation and appropriate sounds) is guided into one of several flowers each of which bears a pair of letters of the form Mm. Only one pair of letters match, and when the bee goes into the correct flower, it then goes to the hive and begins to fill it with honey. When the hive is full, the game starts over. Very popular with the kids.

Leapfrog: Three frogs are presented, two with letters on their chests. You have to guess the middle letter which is a sequence of the form A ? C. If you get it right the frog leaps into the air . Noisy, good fun, and popular.

Lunar letters: Children are able to plot an alphabetical course to a distant star. I found this one inferior to the others, and my young guests did too.

2 Early Games for young children
Multiple skill level games for children aged 3 to 6

This collection offers eight different learning games that aim to teach your child a variety of basic skills, and to provide a fun introduction to computer learning (or so the packaging says). Again, briefly the individual games are as follows:

Match large numbers: These numbers are not numerically large, but are presented large on the screen. It is very straightforward. The computer generates a random number 1 to 9 and you have to match it by keying the correct number. If you get it right, various birds fly over, land on the number and make noises. Good fun, interesting and popular.

Alphabet: The computer generates a letter in alphabetic sequence, you have to key the letter which follows. There is good support if you get it wrong.

Add (or subtract): Two different games with the same principle, that is that you count blocks with animals in them. My young guests found this program to have a severe pedagogical problem in that it is more fun when you get the answer **WRONG**. Therefore the equation is something like:
SmallChild [plus] WhereIsMostFun? [minus] NotTryingToGetAnyCorrectAnswers! [equals] NoLearning.

Match letters: The computer generates a large letter, you have to type it. Ability to swap between caps and lower case is useful. Once more, if you get the right answer, a bird flies over and lands.

Compare: You have to select the odd one out from a selection of shapes and patterns presented. These vary from simple faces to subtly different shapes.

Count: Count animated blocks....... If you get it wrong, the computer takes over, steps through the process, and finally gives up on you. Once more, this game seems more interesting when you get the answer wrong - there is not a big enough reward for guessing right.

Names: In this game you type your own name once, the screen then blanks for you to type your name again and, if you get it right, there is an animated display of your name together with a musical sequence. Great fun, and popular with the children. It maybe even better in colour.

Summary

Overall, I rate these games highly. The children generally found them intuitive to use, or at worst needed minimal tuition to get started. Not being able to turn the sound down was annoying, but the kids did not mind. Perhaps a couple of the games are very suspect as tools for learning.

Copy protection is an emotive issue, but the inability to run these two games from my own startup disk meant that you cannot easily keep a backup even though you are forced into letting small children loose with delicate floppy disks - one of the disks became faulty during the trial, probably through little sticky fingers. Additionally, the copy protection prevented me from getting screen dumps, so this review is without graphics!

Perhaps the best testimonial is that Caius now wants to use Daddy's computer instead of his own.

Teleport Fax Modem

Mike Dawson reviews the Budget 2400 Baud Modem.

Introduction

Working away from home for an extended period in Aberdeen left me somewhat befret of my usual pastimes. Although I do have a Mac Portable (and love it) I do miss the chats on the bulletin boards and CompuServe. I had thought about an internal modem which would be ideal but the price put me off with £300+ for a 2400 baud Modem. I do have a Linnet modem at home and although it was slim and light the power supply brick is so large and heavy it really precludes it from the portable class.

Having read some enthusiastic reports on the bulletin boards of the Teleport Modem I decided to purchase one as it is (a) small and (b) cheap. The Teleport Modem is universal in so much as being able to be used with any Mac with a desktop bus port. This unfortunately precludes the use of this modem for the pre Mac SE's (i.e. Mac Plus and earlier). These Macs do not have a desktop bus for the keyboard and mouse.

The Teleport Modem is cheap and cheerful due to a couple of points worthy of note. These are (a) There is no power supply for the unit as it takes all the power it needs from the host Mac via the desktop bus and (b) There is only one LED on the unit to show status and activity. Normal modems have an array of LED's to show the status of the modem i.e. Carrier Detect, Data Transmission or Reception etc. This modem gets over this apparent lack of information in an elegant and I think better way. More of that later.

Setting Up

Hardware When connecting the Modem to the Mac it is essential that the Mac is turned off before attempting to plug in. This is because there is a possibility of some damage being done to the Mac. This can happen when desktop devices are connected or disconnected with the power on. In the case of Mac's with only one desktop bus port then don't worry. You will not have to forgo the use of the mouse or keyboard. The plug supplied at one end of the Teleport for connection into the Mac has a piggy back socket so that the desktop bus chain can be extended to other devices. The Teleport Modem can therefore be installed anywhere in the chain that is convenient. Caution must be exercised as the desktop bus is a low power system. With a mouse, keyboard and Teleport modem the power drain is considerable. If a graphics tablet is used as well then the maximum current drain can be reached or indeed exceeded..

Software The setting up of the software which drives the modem is easy. This software should not be confused with a communications programme which enables the Mac to dial services (bulletin boards etc.) and the communicate with them. This piece of software is only to enable the Mac to recognise and interface with the modem. This is in the form of a control panel device (Cdev). What it elegantly does is to fool the Mac into thinking that the modem is connected to the modem port when it is infact connected to the desktop bus. This means that all regular Mac communications software

will work with the Teleport Modem without any modification. There is a neat FKey (function key) to toggle this on and off. It is therefore possible to attach another device to the modem port such as a printer and use it when the modem is not in use.

Once the Cdev has been copied into the System folder and the Mac re-booted the Cdev can be opened. The Cdev is System 6 and 7 compatible. The only points to watch in the setting up of the software is that (a) the Modem is connected and (b) select the correct port that the Cdev is to emulate as either the Printer or Modem ports can be used. All that is then left to do is to make a couple of user selections and close the Cdev.

Options available in the Cdev are Sound, Menu and NMP Correction Level. Taking these in order I will explain all :-

Sound : This enables the Teleport to make beeping noises during the dialling of the number by the Communications software. It is therefore possible to switch off the sound so that your colleagues do not know that you are connecting to TABBS instead of working.

Menu: This enables or disables the special menu that the Cdev will place to the right of the menu bar when any communications programme is run. This special menu will display the status of the modem i.e. connecting and if the service is connected then what speed the modem is running at. The speed of the communications is set by the communications programme only and not the Teleport modem. The Teleport will support 300, 1200 and 2400 baud speeds. Dropping this menu will reveal additional commands to issue to the modem and these include : Disconnect, Answer, Originate. The menu bar header is in two versions which are switchable at any time. They are normal and expert mode but both still leave the same commands when the menu is dropped. The information displayed here is the same as that which would be normally expected from the front of panel LED's on the regular type of modem. Thus at a glance it is possible to see the status of the modem and it's connection to the outside world. Additionally if the NMP option has been selected and the connection is successful the menu display will show not only the baud speed of the connection but also the NMP level in operation. This is one up on the 'regular modem'. The expert mode is a duplication of the LED's that are normally shown on the front of the conventional modem i.e. carrier detect, transmit and receive etc.
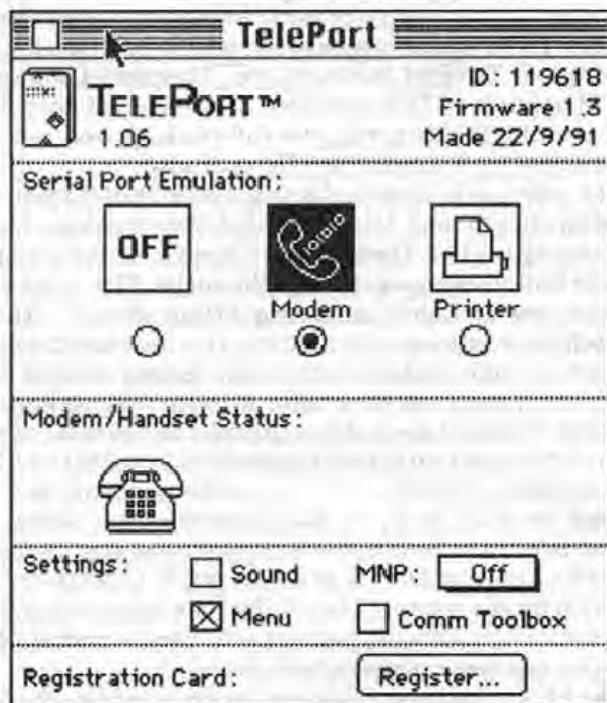
NMP Error Correction: The Teleport modem will support NMP levels 4 or 5 error correction. Look upon the error correction as a software utility that will iron out the BT line noise errors automatically for you. All that is really needed to know is whether the modem with which you wish to communicate with will support the same communications error correction. For your information both CompuServe and TABBS (our own bulletin board) support NMP level 5. It is worth noting however that there is a small penalty for using this error correction technique and that is time. If you are down loading a compressed file then you could well end up taking more time as each packet of information is compressed, sent and decompressed. When typing messages on line the response time is affected but the increase of accuracy is well worth it as you could lose more time in correcting the BT. inserted line noise. It is not possible to switch the NMP option on and off during a session and must be made before running a communications programme. The amount of line noise will dictate the use of this feature.

If the software and hardware have been setup correctly then the single LED on the modem should flash regularly at about 2 to 3 second intervals. If all is not well the LED flashes twice in quick secession with a longer delay inbetween.

Assuming all is well then all that remains is to connect the modem to the standard BT. socket and fire up the Communications software. You should be aware that this modem is not BT approved and as such should not be attached to the British telephone system.

USE

The only difference between this and a 'regular' modem is in the extra menu Item placed automatically to the right of the active programme menu bar, please see above.

After all that it works the same as any other modem I've used. The communications software I use, MicroPhone II (version 3) has never had a problem with it in any way. So now I will go on to the next feature of this modem, the FAX send option.

FAX SEND

The FAX send option comes with the Modem software and in my case was a demonstration copy only. At the time of writing the software to receive faxes was just announced but I when I enquired to Computers Unlimited I was told that there was no upgrade path to the FAX send/receive modem. There is a difference in the hardware which makes the original Teleport incompatible. Therefore I am only able to upgrade to FAX send only. If you wish to have FAX send and receive then buy the full package and not the lesser model as it cannot be fully upgraded.

The software is an introductory option that is restricted to being able to send 10 faxes only before it refuses to co-operate any further. The sending of faxes is easy as printing but the initial setting up is something else. The usual FAX features are available including being able to identify yourself as a unique FAX station. The software is pretty smart being able to discern if you are calling another FAX station in your own area code locality. The setting up however, is not all roses. For a start the software is written for the American market with an emphasis on their dialling code system. Secondly it is not easily apparent how to instruct the FAX to go to the destination you desire. So regular referral to the manual is required. I'm afraid it failed the Mike Dawson "see if you can get it to work before reaching for the manual" test. It does not mean to say that it is particularly difficult, just not intuitive (or perhaps I'm thick, no answers on a postcard please).

The FAX software works in either of two modes. The first is where the FAX Modem is selected from the chooser just

like any other normal printer. This means that ALL output will be directed to the modem automatically. The second
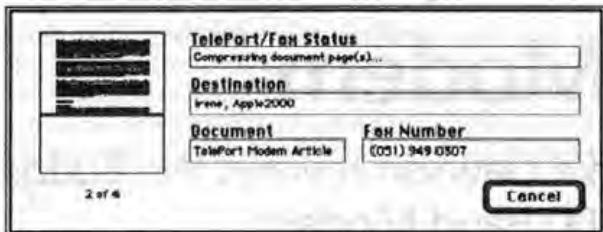
option and by far the more elegant is the print option method. This is done by the very neat idea that when a print is requested the user holds down the 'option' key before pulling down the file menu. The user then finds that by magic the print option has been changed to a FAX option. This is very impressive and will allow the user unlimited access to sending faxes whilst working. The compression necessary before sending takes place in the foreground. This does take some considerable time to complete with several minutes per page of compression in the high resolution mode. Once the compression has been completed it is either spooled into a folder in the system folder for sending later or sent to the modem for transmittal.

I have only sent three faxes in anger to date and all were successful. The FAX in it's evaluation mode is always sent with a cover sheet and several are supplied. Your name, station and the recipients name are automatically included in this cover sheet together with a two line memo. During the trial period of 10 faxes an advertising cover sheet for the Teleport is always sent and cannot be disabled until the product is purchased. Cover sheets are all half pages and normally user selectable from a range of four. There appears
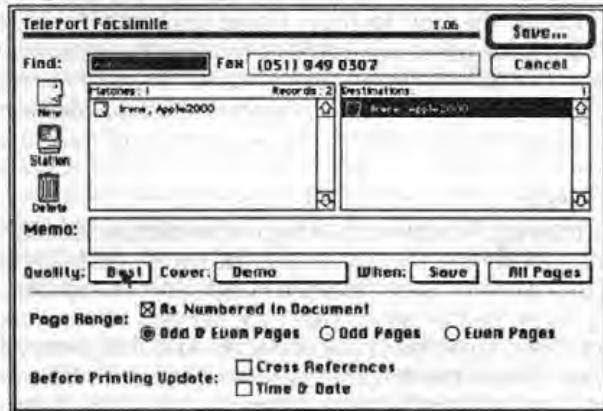
to be no way for the user to design their own and substituting the limited range offered. However, once the FAX software has been purchased a cover sheet need not be sent at all.

Once the document is commanded to be sent to the required destination the menu bar gets an addition to it in the form of a telephone icon. Then, as the compression followed by the dialling is progressing the menu bar has a message placed below the icon. In this way the user is kept posted as to the progress of the FAX whilst you work away in your word-processor or whatever. When the FAX is actually being sent the menu bar changes to a little horizontal progress thermometer. This gradually fills from left the right as the FAX page is sent. After each page has been sent a check is made between the two FAX centres (your Mac and the receipt station) to confirm the page has been received without error. If there is no error then the FAX goes on to send the next page. Once all pages have been sent the menu informs that all pages have been successfully transmitted and then the modem hangs up.

Finally as with any FAX machine a log is kept to detail the faxes sent and the time to send them. This is deposited in one file located in the System folder. The file is a teachText one so anyone can read and manipulate it.

System 7 And All That

The hardware and software are System 7 compatible as I can attest to as I've used it on my 2M byte Mac Portable for the past three months. One problem I have encountered is the memory overhead. When running the Teleport Cdev, which is unavoidable when using the modem, have run out of memory. I always switch out all the unnecessary Cdev's and Inits to give me the maximum amount of free memory. This then presents me with no problems when running a small application like Microphone II for communicating with TABBS. However, when using the Information Manager for CompuServe I have experienced problems. The Information Manager normally requires 1024K of memory to run but with my 2 Mbytes and System 7 I'm only left with some 870K bytes with the Cdev installed. The Information Manager will run in this with only an initial protest. To date I have had only one problem when I was transferring from one Forum to another. The Information Manager suddenly announced that it had insufficient memory to continue and abruptly quit. The lesson is if you intend to use this modem with system 7 then get more than 2 Mbytes of memory in order to avoid this sort of trouble.

The Manual

The small bound, soft back manual, covers all aspects of the modem including the FAX facility and trouble shooting. It is in a plain non-technical language so that the novice should not find it too hard to get to grips with. Installing the software is covered for both system 6 and 7. There is no section on how to dial up bulletin boards such as TABBS or information services such as CompuServe. So the user is left to experiment for themselves. This can be an expensive task given British Telecomms' love of profits.

Conclusion

In conclusion the Teleport FAX modem is a cheap and simple way to send faxes. The pros are it's price and size and features. The cons are it's memory overhead with small memory equipped Mac's and desktop bus power consumption. For a budget modem it represents excellent value. At the time of writing the Computer Club were selling a bundle of the Teleport Modem with a free copy of Microphone II (Version 1.5). Although version 1.5 of Microphone II is not a powerful as it's big brother, Version 3, it is perfectly adequate and well suited to dialling into TABBS. As such presents even better value.

Product :   Teleport Fax Modem
Publisher :   Global Village Comms. Inc.
Available from :
    MacLine
    123 Westmead Road
    Sutton
    Surrey SM1 4JH
    Tel. 081-642-2222
    Price : £155.00 + VAT & P&P

Value for money :   🍎 🍎 🍎 🍎 🍎
Performance :   🍎 🍎 🍎 🍎 🍎
Documentation :   🍎 🍎 🍎

information

Analysing Your Bank Account

Geoff Wood has devised an Excel model to help you to keep track of your finances

When you receive your bank statement, do you sometimes wonder where all the money went? Many of the entries are for the same items, e.g., mortgage, gas, electricity, cash, etc. Even with the aid of a pocket calculator, it's a terrible chore to add up all the similar items. But if you have Excel, you can analyse your bank statements or your credit card account (or business accounts such as a nominal ledger) by using the database commands and the Table function.

The picture shows a bank account analysed with Excel. For ease of illustration, only a few different types of entries are shown and most of the figures are rounded off to the nearest £10.

The first step is set up the Excel database. You need five columns, column A for the date of each transaction, column B for a description of each item, columns C and D for the debit and credit entries and column E for the balance. If you wish, you can use another column for the cheque numbers but this information is not needed for the analysis.

Enter the headings **Date, Description, Debit, Credit** and **Balance** on the first row of the worksheet in cell A1 to E1. Drag down the split bar to between rows 1 and 2 and use the Freeze Panes command in the Options menu.

Select columns C, D and E and use the Format Number command to format all the entries with two places of decimals (and £ signs if you wish). Select column A and use a date format such as d-mmm-yy so that when you type 1/1 it displays 1-Jan-92 (current year default).

Next, enter all the data from your bank statements. Try to ensure that the description entries are consistent. Don't type *mortgage* for one entry and *Halifax* for the next payment. It doesn't matter if you make a few spelling mistakes; the analysis will reveal your errors.

In row 2 of the Balance column (cell E2), enter the opening balance. In cell E3, enter the formula =E2-C3+D3, then use the Fill Down command to enter similar formula down the column as far as necessary.

Now enter the data from your bank statements. As you do so, the numbers displayed in the Balance column should be the same as those printed on your bank statement. If not, check your entries. It's unlikely that the balances shown on the bank statement will be wrong.

Select all the cells from A1 to the bottom of the Balance column E, then use the Set Database command in the Data menu. All the cells in the selected area are now named Database. In the illustration, the database area is shown with double borders but this is not really necessary. (If you ever want to check which cells are contained in the Database area, use the Goto command to select all the cells named Database.)

For the purpose of this description, let's assume that your Database area runs from cell A1 to cell E100. Although it is not absolutely necessary, you should now enter SUM formulas in cells C101 and D101 to add all the entries in the Debit and Credit columns. These figures will serve as a check when you use the DSUM function later.

Now set up the Criteria area. Select the cells A1 to D1 containing the titles of the Database columns (but not the Balance column) and use the Copy command. Then select any cell outside the Database area and use the Paste command to display the titles.

If you wish, you can paste these headings in cells to the right of the Database area but if you use cells below the Database area, the file will use less disc space. If the Database runs from A1 to E100, you could put the Criteria titles in, say, cells A103 to D103.

If you prefer, you can type the Criteria titles in a row of cells. They need not be in the same sequence nor in the same columns as the Database titles but the spellings and upper/lower case of the titles in the Database and Criteria areas must be identical.

Select the Criteria titles and the empty cells in the row below (e.g., A103 to D104) then use the Set Criteria command from the Data menu. This block of cells is now named Criteria. The illustration shows a double border round these cells but this is not really necessary, nor is the word CRITERIA shown in cell A102.

Next, use the DSUM function. Select any cell outside the Database and Criteria area. It makes things easier if you use a cell in the Debit column and below the Criteria area, e.g., cell C106. Then use the Paste Function command in the Formula menu, choose DSUM from the list of functions and click the 'Paste Arguments' box before clicking the OK button.

The formula bar will now display the formula =DSUM (database,field,criteria). Before you click on the tick or press Enter, select the word *field* and change it to "Debit" (including the quote marks). After you click on the tick, the Formula Bar will display =DSUM (Database,"Debit",Criteria) and the cell itself will display the total of the Debit column.

If the answer displayed is not the same as that in cell C101 where you used the SUM function to add the Debit column, check all the above instructions to see where you went wrong.

If all is well, select the cell in the next column, i.e., cell D106, paste in the DSUM function again but this time change the word *field* to "Credit". Alternatively, you could select cells C106 and D106, use the Fill Right command, then change the word Debit into Credit in cell D106.

If the answer displayed is not the same as that in cell D101 where you used the SUM function to add the Credit column, check all the above instructions to see where you went wrong.

So far, you have put in a lot of work and not seen much for your efforts. A little more work will enable you to reap the real reward, the analysis of the debits and credits.

First, select all the entries in the Description column from cell A2 to the last row of the Database. Use the Copy command then paste the list into the column to the left of and one row below the cell containing the first DSUM function, i.e., cell B107 in this example.

While the newly pasted list is still selected, use the Sort command in the Data menu to sort the entries into alphabetical order. Check through the list for misspelt entries. If you find any, select column B and use the Replace command in the Formula menu to correct the spellings.

Many of the entries in the sorted list will be repeated but you need only one of each. Go through the list selecting all but the first of each different entry and use the Clear command (Command-B) to blank out the duplicates. Then select all the entries (including the blank cells) and use the Sort command again to put the entries at the top and the blank cells below.

Instead of using the Clear command you could use the Delete command (Command-K) to cut the cells containing the duplicate entries, thus moving the remaining entries up the list. However, this method may be slower than blanking and sorting. Alternatively, if you know how, you could write a macro to do the job automatically.

Check the list of descriptions to ensure that there are no duplicate entries and that none of the entries are the same as the start of another entry. For example, if you had one entry named *Cash* and another named *Cash Machine*, after you have used the Table command, the total for the *Cash* entry will include not only all the debits for Cash but also those for Cash Machine.

To overcome this, you could select column B and use the Replace command to replace the word *Cash* with the words *Cash Cheque*. (Click the 'Look in Whole' box to prevent it changing *Cash Machine* into *Cash Cheque Machine*.)

When you are satisfied that the list of descriptions is correct, select the block of cells which includes the list itself and the two cells containing the DSUM formulas. In the illustration, with the last entry in the list on row 117, you would select cells B106 to D117.

Now choose the Table command from the Data menu. A

Dialog box will appear with an insertion point flashing in the Row Input Cell box. Press the Tab key to move the insertion point to the Column Input Cell box. Now click in the worksheet on the empty cell that lies just below the title **Description** in the Criteria area, i.e., cell B104 in the example described above. If necessary, you can use the scroll arrows to bring this cell into view.

Click on the OK button in the Dialog Box and wait a few seconds for the answers to appear in the table. All the cells will contain the same formula, in this example {=TABLE,B104}. The curly brackets mean that these are array formulas. All the cells in an array have the same formula and you can't change individual cells in an array.

Some of the entries may appear as 0.00 or £0.00. If you wish to suppress the zeros, you can either use the Display command in the Options menu or create a special format.

Finally, use the SUM function in cells C118 and D118 to add the entries in the Debit and Credit columns of the analysis. The answers should be the same as those displayed in the DSUM cells. If not, check the analysis to see if any entries are missing or duplicated.

Alternatively, as shown in the example, you could use the IF function to display a message to show whether the two totals are identical or, if not, to show the difference. In the example, the formula in cell C118 is =IF(C106 =SUM(C107:117),"OK", C106-SUM(C107:117)). However, be warned that this formula may display 0.00 or £0.00 if there is a very small difference between the two numbers. The problem can be overcome by choosing the Calculations command in the Options menu and clicking in the Precision as Displayed check box.

Once you get the hang of the DSUM function and the Table command, you can devise more sophisticated analyses. For example, you could create a table showing quarterly totals of the debits and credits. Instead of using the name Database in the DSUM function, you can use the cell references, say, A1:D25 for the first quarter. To get the second quarter totals, use A1:D50 and deduct the contents of the cell showing the first quarter total. For the third quarter totals, use A1:D75 and deduct the contents of the cells showing the first and second quarter totals, and so on.

You don't have to wait until the end of the year to do the analysis. You can set it up earlier and leave some empty rows in the Database for further entries. When necessary, insert some extra rows *before* the last row and use the Fill Down command on the formula in the Balance column. By this means, the Database area is extended automatically, whereas if you insert extra rows *below* the last row of the Database area, you will have to use the Set Database command again to redefine the Database area.

As you enter more data, the DSUM and Table cells will be recalculated. If the recalculation takes too long, you could use the Calculate command to switch off the Table recalculation but don't forget to use the Calculate Now com-

mand before printing out the worksheet.

One problem with the Table function is that if you enter a new description in the Database which you have not used before, you can't insert a row into the existing analysis table because Excel will not let you change part of an array. You must select all the cells containing the Table formulae—C107 to D117 in the example—and use the Clear command to blank them out. Then insert a row where you want to put the new entry, and type in the entry description. Finally select the cells from B106 to D118 and use the Table command again.

Of course, with Excel and some less sophisticated spreadsheet programs you can perform the type of analysis done by accountants whereby you designate a column for each different entry and use the IF function to display the amounts in the correct columns. This method works all right with a few columns but with many columns and rows the file can be more than 100k or even over 1Mb and that it takes a long time to recalculate. The DSUM and Table method uses far less memory and takes less time to recalculate. It is also easier to print out.

Who knows, if you become adept at using this technique, you could earn some money by offering the service to people who don't have the benefit of a Macintosh and Excel.

Bank Account Analysis

	A	B	C	D	E	
1	**Date**	**Description**	**Debit**	**Credit**	**Balance**	
2	31-Dec-90	Opening Balance			£ 500.00	
3	2-Jan-91	Community Charge	£ 80.00		£ 420.00	
4	8-Jan-91	Salary		£ 850.00	£ 1,270.00	
5	9-Jan-91	Credit card	£ 400.00		£ 870.00	
6	15-Jan-91	Gas	£ 30.00		£ 840.00	
7	17-Jan-91	Mortgage	£ 140.00		£ 700.00	
8	18-Jan-91	Cash Machine	£ 100.00		£ 600.00	
9	19-Jan-91	Cash Cheque	£ 150.00		£ 450.00	
10	23-Jan-91	Electricity	£ 25.00		£ 425.00	
11	29-Jan-91	Water	£ 40.00		£ 385.00	
12	1-Feb-91	Community Charge	£ 80.00		£ 305.00	
13	8-Feb-91	Salary		£ 850.00	£ 1,155.00	
14	8-Feb-91	Credit card	£ 450.00		£ 705.00	
15	9-Feb-91	Cash Cheque	£ 150.00		£ 555.00	
94	9-Dec-91	Credit card	£ 250.00		£ 1,195.00	
95	13-Dec-91	Gas	£ 30.00		£ 1,165.00	
96	14-Dec-91	Cash Cheque	£ 150.00		£ 1,015.00	
97	17-Dec-91	Mortgage	£ 110.00		£ 905.00	
98	17-Dec-91	Community Charge	£ 80.00		£ 825.00	
99	19-Dec-91	Credit card	£ 250.00		£ 575.00	
100	24-Dec-91	Electricity	£ 25.00		£ 550.00	
101		**Totals**	£ 10,550.00	£ 10,600.00		
102	CRITERIA					
103	**Date**	**Description**	**Debit**	**Credit**		
104						
105		**ANALYSIS**	**Debit**	**Credit**		
106		**DSUM totals**	£ 10,550.00	£ 10,600.00		
107		Car insurance	£ 300.00			
108		Car Tax	£ 100.00			
109		Cash Cheque	£ 1,800.00			
110		Cash Machine	£ 900.00			
111		Community Charge	£ 800.00			
112		Credit card	£ 4,350.00			
113		Electricity	£ 300.00			
114		Gas	£ 360.00			
115		Mortgage	£ 1,480.00			
116		Salary		£ 10,600.00		
117		Water	£ 160.00			
118		**Check Totals**	**OK**	**OK**		
119						

New Mac? Confused? Read This!

by Hal Feldman

So you just bought a Mac and became one of the smart consumers who rose above all the people who suggested you buy an IBM. Congratulations! You made the right choice. However your battle in the computer world has just begun.

Unlike any other industry, computers change faster than you can say "mouse click." For that reason, if you are to ever use your Mac productively, you must constantly keep up-to-date in your computer knowledge. Fortunately, in the Mac world, doing this can be fun and exciting.

The fact that you are reading this article is a good sign for you. Reading is probably the first step to getting up to speed. However, this is not going to come easy. Unfortunately, you are joining the Mac community in its "adult stage." In 1984, the Mac was a "baby." It, along with its terminology, technology, and usefulness was just starting. Basically, all you could do was word process, paint, work on a spreadsheet, and play games. Therefore, learning what the Mac was all about was easy because it was only a "child." Since then it has matured at such a rate that no one can say they are completely Mac literate. Video imaging, desktop publishing, digital audio capturing, MIDI interfacing, and relational processing are just a few of the THOUSANDS of things today's Mac can do. Each of these tasks are incredibly detailed and difficult to understand by themselves, let alone when they are discussed and explained together.

The confusion could very well kill the enthusiasm of ANY Mac user, let alone a new one. That's why I'm here! Hopefully, after reading this article, you'll have a personal direction to take with your Macintosh as well as a better understanding of the tremendous amount of power you have just purchased.

PART ONE: The (Almost Required) Macintosh Readings

Let's start with the reading basics. There are two major Mac magazines available to you, MacWorld and MacUser. *(Editor's note: this is an American article, which we have reproduced, therefore the author's comments apply to the U.S.A. versions of any magazines mentioned.)* Both are excellent publications that I highly recommend. (Actually, the more that I think about this, I would steer new Macintosh users to MacUser before MacWorld.) However, both the magazines are written for people with a very high level of understanding. For this reason, I suggest that you follow these steps while reading either magazine:

1) Do not buy at the newsstand! Get a subscription and plan to keep it for as many years as you'll have your Mac. This way, once a month, you'll have an influx of new material to read without having to go out and make the effort of finding it.

2) Read as many of the editorials, Q&A sections, and Tip/Hint areas of the magazine as you can understand. And, don't force yourself to try to understand anything! Your understanding will come to you with time.

3) Selectively read any specific topics that interest you (i.e.- Word Processor comparisons, Hard Disk Management articles, etc.) and SKIP ANYTHING THAT YOU THINK IS OVER YOUR HEAD. You are not missing out on anything by doing this, except for the possibility of getting very frustrated. You can always go back at a later date when you have a better understanding of the topic.

4) Contrary to my "don't understand it, don't read it" policy above, I strongly suggest that you study each and every software review and advertisement for software as if it were the bible, because when it gets right down to it, software is the most important part of the Mac. Even if you don't understand what

you are reading, READ IT ANYWAY! The more you know about what your Mac can do, the better you'll be able to decide what you use your Mac for!

I would also recommend that you continue to read the Mac Street Journal. While it certainly isn't nearly as comprehensive as MacWorld or MacUser, it is written at a very understandable level. It is also edited in such a way to allow each author's personal feelings to show toward particular products and techniques. This can be very useful for new Mac users. It gives them a better sense as to how other users react to using their Macs.

As for computer books about the Macintosh, they number in the thousands. Don't let your local bookstore trick you either! They're likely to only carry about 50 of them. Unfortunately, the big money is in IBM books. For some reason, which I can't explain, it seems that more IBM users need help understanding their machines than us Mac enthusiasts; therefore, the stores cater to them. Maybe it's a sign of pity. (But seriously....) There are some very good books available for the Macintosh, you'll just have to look for them a bit harder.

One book I would force new Macintosh users to buy is The Macintosh Bible. Like it's name suggests, the information contained in this book is almost divine. The Macintosh Bible, which by the way is periodically revised to cover all the newly released Macs and software, addresses almost any question you'd have about the basic operation of your Macintosh. In fact, for the first few month you have your Mac I would recommend that you have this book nearby. If you're really interested in learning about your Mac, it'll be used probably as much as your mouse!

PART TWO: Protect Your Mac (or Who To Believe and Why)

Like in many other areas of life, your Mac is likely to bring you both joy and pain. The key here is to BOTH maximize your joy and minimize your pain. For your sanity this will be important, because if you're like all the other Mac users I know, after a while your Mac will become a part of your life.

With that in mind, let us set forth some CARDINAL RULES that I have learned during my 7 year relationship with the Macintosh. Following these few simple rules will save you from a lot of that ugly pain and may even bring you a good amount of joy. I've learned that developing good habits reap huge rewards. As you read these rules, don't get nervous if you've broken any of them. When you first get started with your Mac, it is usually easy to correct your early mistakes.

CARDINAL RULE #1 — ASK QUESTIONS

Question any and all information you are given. While there are many people who USE (and possibly abuse) the Mac, there are only a handful who KNOW the Mac. Unfortunately, like in real life, people shoot there mouths off about thing they don't know about. If you take the wrong advice, it could mean MacTrouble for you down the road. So my advice is ALWAYS get a second opinion (maybe even a third and fourth) and after that, if you still don't think the information you were given is right, don't follow it. Whatever you end up doing, DON'T CHANGE ANYTHING ON YOUR MAC THAT YOU DON'T HAVE A BACKUP OF.

CARDINAL RULE #2 — SYSTEM SOFTWARE PROTECTION

One of the most important parts of your computer, and therefore, the most likely to have problems, is the system software. Apple has enough difficulty releasing system software that is relatively bug-free, so when you have a brand-new, clean copy of it, treat it like gold. How do you treat your system software like gold? Follow the next three steps:

Step #1

Properly install your system software from the original Apple-supplied disks that came with your Macintosh by using the INSTALLER software. Once installed, don't update any of your system software unless you use the INSTALLER program again. The above also intrinsically tells you never to mix different versions of system software or simply copy system software from disk-to-disk. When you do an Apple approved system software update, you will replace the entire system. There are, of course, exceptions to this rule, but I suggest you triple check anyone who tells you to go against what I just outlined above. Apple is very specific about the installation procedure, and with good reason. A buggy or improperly installed set of system software can cause problems with every

piece of software you'll ever run!

Step #2

Don't make internal changes to your system unless you KNOW what you're doing. As you get more familiar with your Mac, people and magazines will suggest that you add and change things with your system software. These changes are usually quite appealing. They allow you to customize your Mac in almost limitless ways ranging from better fonts to digitized sounds to a better user interface. Usually these changes are performed by running small programs (known as utilities), sometimes they are done by using a powerful program called ResEdit (a program that literally let's you change the guts of a program).

Whatever the case, and no matter how simple it looks to do, remember what you are doing. You are making changes to your system software. Granted, 99% of these changes will work and never cause problems, but the more changes you make, the more chance you have "conflicts". These conflicts occur when one or more of these changes interact unfavorably with each other in your computer's memory. They can cause computer quirks ranging from incorrect data to entire system crashes. So, once again, I suggest that you try to resist changing your system, at least until you know what you are doing and know how to fix any problems that can arise.

Step #3

The last step to keeping your system software in tip-top shape is to take care as to way you handle inits, cdevs, fonts, and desk accessories. Using any of these little "system helpers/enhancers" almost never cause problems by themselves, but when mixed, these little 'buggers' can reek havoc on your poor defenseless little Mac. Again, installing inits, cdevs, fonts, and desk accessories are all system changes! The only differences between these changes and the ones described in Step #2 are that all of these are temporary changes, which can be fixed with minimal effort.

Let's discuss inits and cdevs as one topic. Inits and cdevs are 'system enhancers.' In effect, they are little programs that are intended to improve your Mac's capabilities. For example, an init may place a clock on your desktop window or another may give you the ability to operate an elaborate spell checker. Cdevs are similar, however, they not only perform a particular function, they also allow you to customize the function they are doing through the use of the Control Panel (under the apple-icon menu). These changes can range from controlling screen savers, allowing digitized sounds to be played during specific operations, or protecting your computer from viruses. Many inits/cdevs are under constant re-writes and change version numbers almost monthly. Therefore, if you either update your system software or install a newer version of the init/cdev you have make sure they are compatible with each other. You should also determine if the version you have is the best one to run. Do this by either reading documentation (which normally accompanies updates) or ask other Mac users who have already used the version you plan to install. Whatever the case, if you begin to have trouble (system crashes, unexplainable errors) with any init or cdev, simply remove it from your system folder. This will stop them from being loaded when your computer is turned on, and will thus eliminate the problems. For now, that is all you need to know about inits and cdevs. However, I suggest that as you accumulate your own inits and cdevs you read all the documentation that comes with them. Don't blindly put them into your system folder "just to see what happens..." Under a few isolated cases, what could happen is nothing short of disaster!

The next set of system modifiers are fonts and desk accessories. Fonts and DAs are the least likely system changes to give you problems. Your Macintosh comes with several fonts and desk accessories pre-installed into your system. What is important to understand about these installed items is that they are totally removable! The nice folks at Apple gave you some to begin with, but you can make the final decision as to which ones you want as part of your system. There are two ways to install fonts and DAs to your liking. You can either use the Apple-supplied program called Font/DA Mover, which makes permanent changes to your system software or you can purchase either Suitcase II or MasterJuggler, which allows you to modify fonts and DAs without making permanent system changes. While either method is acceptable, I strongly suggest

you purchase Suitcase II (or MasterJuggler). These programs allow for faster, more intricate, easier changes that do not modify system software.

CARDINAL RULE #3 — BACKUP!

This is probably the most written about topic in all of computing and there is a reason for it. When you least expect it, that's precisely when you will lose your data. So before it happens to you, begin to BACKUP! If you don't, you could soon learn what it feels like to lose a 'loved one.' Recently, I suffered a hard drive crash, and unfortunately it was during a time that I hadn't backed up for a while. As a result, I lost several original drawings and nearly 60 pages of a screenplay I had worked on for nearly a year! Take it from me, it feels as if you've lost someone special to you. Since that crash, I have purchased a second hard drive for the sole reason of doing backups. I do them every night now. And after several weeks of recovering from my loss, I can finally sleep well again.

OK, now that I have your attention (did I mention BACKUPS?), let's discuss when, where, and how to do them. What you are about to read is a guideline. You can modify it, reject it, or follow it to the letter....just as long as you somehow get around to backing up the information you wish to keep.

Backups almost always feel like busy work. You may also feel that the added expense of purchasing more floppy disks, a tape drive, or (in my case) another hard drive is not justified, but believe me, it is. Your personal information is priceless and should be the first things you protect. Anything that you've typed, drawn, planned, or toiled over is most at risk. Why? Because these documents are truly originals! No other Mac users has these items. Programs and commercially-supplied data are replacable because there are always ways of getting copies. In fact, if the product is commercial, you probably were sold an original floppy disk. This serves as an emergency backup. (We all know that you should never use a master disk for everyday work, right?!)

Anyway, there are several ways to approach backing up software, depending on the type of storage devices you have. If you only have floppy disk drives, all you need to do is duplicate all your program disks, use the copies for you work, and store the originals in a safe place AWAY FROM ALL SPEAKERS! Then, simply backup all your original documents once a week or so. If you are dedicated to doing this, you'll be safe from most data losses.

If you have either a hard drive, tape drive, or CD-ROM, things get more complicated. Since these devices store mass amounts of information, it is far more important to make sure you stay on top of backing them up. Losing the information on one floppy disk may only wipe out a few word processing documents, whereas a damaged hard drive could leave you completely wiped out! So, unless you are storing under 10 megabytes of information on your storage device, I strongly recommend you rush out and purchase a software package that manages your backups. Typical program names are: DiskFit, Redux, and HDBackup. These programs are so necessary to manage hard drive backups that many manufacturers include one of these programs as a courtesy when you buy their drives. However, while each of these programs accomplishes the task of backing up your programs, they are not all created equal. Some allow limited options, others are slow, some simply have size limitations. For that reason, I suggest that before you get a backup program you research which one will best suit your needs.

Now that you're ready to backup, I will suggest that you (1) backup at least once a week, (2) do backups only after you check for viruses (I'll be discussing viruses very soon. For now, just understand that if you do a backup of a virused program, the backup is USELESS!), and (3), do backups with all the system extras OFF (sometimes INITs and other programs can crash your backup program in mid-backup!).

Don't get all worried if this stuff sounds confusing, backing up isn't as difficult as it's beginning to sound. Just buy a good backup program and READ THE MANUAL. If you follow the directions properly, you'll have a lifetime of happy MacEncounters. I just wanted to stress how important backing up is.

CARDINAL RULE #4 — VIRUS PROTECTION!

This is my least favorite topic to write about. Unfortunately, in the Macintosh community, we all have to be on the lookout

for little destructive programs called viruses. We are not alone though. Users of the IBM, Atari, Amiga, and other computers systems also suffer in the same way.

To put it in the simplest terms possible, viruses (also called worms, trojan horses, and strains), are program that play nasty tricks on your computer and software. To explain how they exist, get into your computer, and what exactly they do could fill a book, but let us suffice to say that you NEVER want to have a virus. They can do things ranging from simply making your computer beep for no reason to displaying crude messages on your screen to erasing entire hard drives.

Unfortunately, viruses abound in the Mac community. They usually spread when floppy disks are traded back and forth. However, even if you've never traded software or data, you're still not totally safe. Once in a blue moon, even software companies will unknowingly release program disks with viruses on them!

Thank god someone has come to our rescue. Several programs exist on the market that do nothing but detect and destroy these invisible viruses. It is imperative that you get a virus program immediately! While several manufacturers sell programs, I strongly suggest using Disinfectant, which is a shareware (free) program. It is available through NYMUG and is an excellent virus fighter.

PART THREE: Learn Your Mac (from the ground up...please!!!)

OK, now for the real secrets. In this section I hope to give you a painless way to enter the 'adult' world of the Macintosh computer world. As I mentioned at the beginning of this article, the Macintosh computer line has matured quickly since its introduction in 1984. Back then, new Mac users had no problem quickly understanding their Macs because there was almost nothing to learn. Everything related to the Mac was in its infancy, and thus users from that era grew up with the technology and programs, not behind them.

Nowadays, new Mac users could be compared to four year olds chasing after the theory of relativity! It just can't be done in one leap. Instead, just like it was eight years ago, slow and methodical learning is necessary to reach the final goal: MacKnowledge. However, new users today have one big thing working against them, the temptation of skipping steps and jumping to the flashy things the Mac can now do. Trust me, this is the worst thing to do! One must overcome temptation. It is only then that you can really begin to understand the world of the Macintosh.

The Macintosh is a computer for EVERYONE. It is a simple machine to users that don't want to learn a lot of technical jargon. It is a powerful machine for people who need serious number-crunching capabilities. And, it's a fun machine for others who just want to enjoy the Mac. The reason the Mac is all these things is because of its software. Mac software is some of the best written in all of computing. Macintosh software is also unique, unique because it all follows something called the Macintosh graphic user interface (or GUI). The GUI includes using pictures (or icons) to represent long and wordy procedures on-screen, pull-down menus that constantly remind the user what options are available, and point-and-click technology that lets the user graphically manipulate the computer in powerful ways.

All this talk may sound impressive, and it is, but more importantly, once you begin to use the Mac you'll see that the GUI is comfortable. That is, it's easy to use. That's exactly what the Mac is all about: comfort and power!

So now that you understand that the GUI is the main (but certainly not only) reason that the Macintosh is such a terrific computer, you should also agree that the only way to take advantage of your Mac is to know your GUI inside and out.

The way to learn the GUI is to start at the beginning, with the system software (or operating system). Forget about diving into the thirty programs you just got from a friend or NYMUG (you did remember to join, right?), begin by learning how to use your mouse. Click on the menu bar. Learn how the alarm clock works. Play with the settings in the Control Panel. Learn that one click on an icon 'selects' that icon for further change and that a 'double-click' on an icon puts that program or document into action. See how the scroll bar allows you to look at files that are hidden from view in a small window. And, I can't stress this enough, learn how to place and move things in and out of

folders. Learning how to move through folder levels is the most important thing you can learn about the system software, yet I would guess only 60% of today's users do it correctly! Learn these simple mouse operations NOW and learn them to the point that you don't have to think about them.

Over the past eight years, I've been a consultant for nearly 100 people who were new to the Mac, and I cannot stress how important the above information is. You should be comfortable with EVERY operation the system software can perform for you. In my experience, the few people who have told me they don't like the Mac all have one thing in common. They never learned the basics! They thought they could skip steps and cut corners. And, as you might have guessed, this practice came back to haunt them.

Remember, it is impossible to build a house unless you know how to use the tools. However once you know your tools, not only can you raise a house, but you can build most anything. In the Mac world, once you know how to use the basic tools well, any program you encounter will be easy to understand. This of course leads to productivity, which leads to accomplishment, which leads to happiness. Need I say more? Q.E.D.

PART FOUR: Quick General Suggestions

The following is a list of little Macintosh programs I would be lost without. Again, these are my personal suggestion. You should research and explore to see if these items are right for you. (1) "SuperClock," a cdev that place a clock in your menu bar, (2) "OnCue," a program launcher that speeds up loading programs and documents, (3) "DiskTop," a desk accessory that allows you to do desktop operations while in a program, (4) "After Dark," a screen saver, and (5) "Suitcase II," an innovative init that I explained in the Font/DA section of this article.

I also would be remiss if I didn't pass on these short tid-bits. These are suggestions and tips to help make your Macintosh an enjoyable machine to work with:

1) Steer away from installing internal hard drives. They put added strain on your Macintosh power supply and thus cause more internal heat. Both of these side effects are bad for you Mac's long-term health. In addition, with an external hard drive, you can take your data with you without lugging your Mac along too. If you have the option, purchasing a slightly more expensive external hard drive will pay for itself almost immediately.

2) Keep all your Mac equipment away from speakers, radiators, dusty areas, and damp basements. Need I mention why? MACINTOSH REPAIR BILLS CAN BE STAGGERINGLY EXPENSIVE!

3) Set up your Mac so you have the screen just below eye level, have space for your keyboard, and still have ample room to move your mouse around. (Simple advice goes so far in life.)

4) Don't buy extra memory because the dealer tells you to. Go home and try out your software first. The only time you need more memory is when your Mac tells you its out of memory! Extra memory is just a waste. Contrary to popular belief, more memory does not speed up operation.

4.5) If you do need more memory, order it mail-order and install it yourself! Most companies will send you instruction on how to do the installation, which, by the way, is about as easy as putting bread into a toaster. You'll also save up to 300% by doing it yourself.

5) If you are planning on using your computer for short periods of time over an entire day, do not shut the computer off between sessions. Leave your Mac on all day (make sure you either use a screen saver or turn the brightness down of your screen when you do this). It is better for wear on the electronics inside you Mac not to have their temperatures cycle often. Literally, chips and components can fail from thermal stress.

6) Also, if you haven't already, join a Macintosh users group. If you live in New York City, NYMUG is the group you'd join. However, no matter where you join, a users group provides you with endless help and information.

Once again, congratulations and welcome to the Macintosh world, only enjoyment lies ahead!

Test drive the PowerBooks

for ergonomic design — before you buy one !
by Denise Caruso

In the past 30 days, I've had the occasion to use a Powerbook 170 for about 10 solid days on the road. The first time I was the beneficiary of a generous loan from an Apple product manager, the second was after I'd bitten the bullet and maxed-out a credit card to buy one for myself.

Apple has done a number of things right with the PowerBook, at least with the 170. It's the right size, though a little heavy, the backlit screen is really quite wonderful, and when the system is engaged and nothing is in rest mode it is very fast.

I'm still getting used to System 7 (I didn't switch over my networked office computer yet, being short on spare time and sanity to fix every little damn thing when it breaks), but so far it's got some interesting features. And I hear from my nerdiest friends that once I get used to it I will never go back.

Okay, I'll take that on faith.

But there are a number of things about the PowerBook 170 — things which I can only imagine are exacerbated on the lower-end models — which I find annoying.

The first is the keyboard, which I was convinced by John Sculley among many others that I was going to L-U-V love once I got my hands on it. And it was true; for the first few minutes, the design — with the keypad bumped up adjacent to the screen, as opposed to its usual notebook-computer position close to the body — feels really good to people like me with carpal tunnel syndrome (CTS).

But after more than a few minutes it's not that great, for a few reasons. One is that it's supposed to feel good to have somewhere to rest your wrists. But the whole computer gets really hot when it's active (more on that later), and if you're typing for more than two minutes at a time, resting your wrists on the hot plastic makes them stick to the keyboard.

Wrist skin is really delicate and since my CTS is always flared up a tiny bit, the skin is always a little inflamed. This design actually hurts them more.

It's the same problem I have with most wrist rests that are sold for desktop computers. They make them out of neoprene, naugahyde or some godforsaken vinyl junk, any of which makes you feel like your wrists are wearing a rubber body suit or going scuba diving. It is really uncomfortable, and as I said, actually creates pain for me.

The only real relief I've had from this problem is by following the suggestion of a hand therapist, Lisa Voge, who said I should put a pillow under my computer. I got one made out of really soft, silky velvet, and it felt wonderful.

I think I'm going to try to custom-fit a similar type of fabric to the PowerBook keyboard, and just keep it rolled up in my "travel bag of tricks," along with a long phone cord, a screwdriver and the good old straightened-out paper clip for those nasty system reboots.

There are two other problems with the keyboard as well. One is that the action on the keys is really springy, almost as chiclet-like as the old IBM PCjr, and I find I really have to bang on them to make them respond. The impact hurts my wrists, fingers and arms.

The shift key and the space bar — the two keys that really should respond quickly and which are the most annoying when they do not — are particularly insensitive. I really, really hate having to go back and capitalize things, or put spaces between sentences or words, when I've already done it once.

And I find that on the PowerBook I do have to go back and fix those two problems — caps and spaces — at least every other sentence, unless I'm really concentrating on banging hard and making every move very deliberate. This slows me down enormously and disrupts my train of thought, especially if I'm composing or taking notes, which are the two things I do most on a computer. Grrrr.

Conversely, and go figure, you can direct your breath or wink at the Caps Lock key and it engages. But unlike desktop keyboards, it doesn't do so with an audible click. So all of a sudden, you may unwittingly and much to your chagrin find yourself typing along in all caps, and you have to go back and change everything. Double grrr.

The last keyboard-related problem is that its design makes it really uncomfortable to use on a desk or table top in a hotel room. Most such tables are designed for handwriting, not typing — I've not yet found a hotel where there's actually a typing table — so the position you're in if you're working on one is actually puts a lot of pressure on the wrists, which is a no-no, ergonomically speaking.

The PowerBook is, however, absolutely perfect for lap or airplane work. But the problem when forced into using the computer on your lap is that the little bugger COOKS. I was sitting next to a guy using a PB100 at a recent conference (we were sitting together in the back of the room so we could be next to an electrical socket, ahem — more on that later), and we both had to pick them up off our laps every once in a while and sort of fan away the heat vapor. I don't know what components are actually causing it, but these computers pump out a remarkable number of calories.

And last but not least: the batteries. Having used the PowerBook for a week before actually buying one, I knew all about getting halfway across the country on a flight to New York, or halfway to Boston a train from New York — that's about three hours — and having to stop work because the battery was too low to continue without plugging in.

As a result, when I bought my own, I bit the bullet for the additional $200-plus for an extra battery and a charger. What else could I do? If I really wanted to do useful work on the road, and wanted to work all the way across-country on an airplane, then I (a) had to have two batteries, and (b) had to buy the charger, or else I wouldn't easily be able to get two full charges for the trip home without undue hassle.

I have heard from some people that the problem isn't the short battery life — that the battery life isn't as bad as it appears, it's just that the desk accessory isn't good at reading the amount of remaining charge. And I am well aware that there is a nasty and very unsatisfactory tradeoff to be made between a really nice backlit screen, the weight of the unit, and how long a battery can keep a highly functional and readable screen and computer operating.
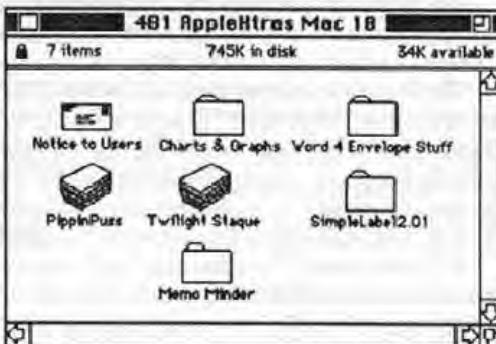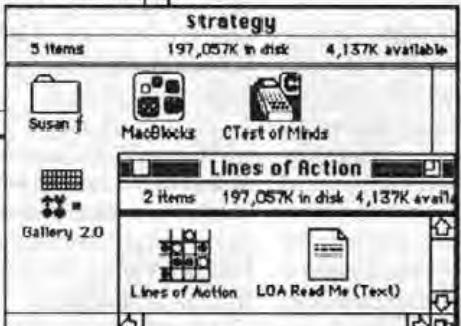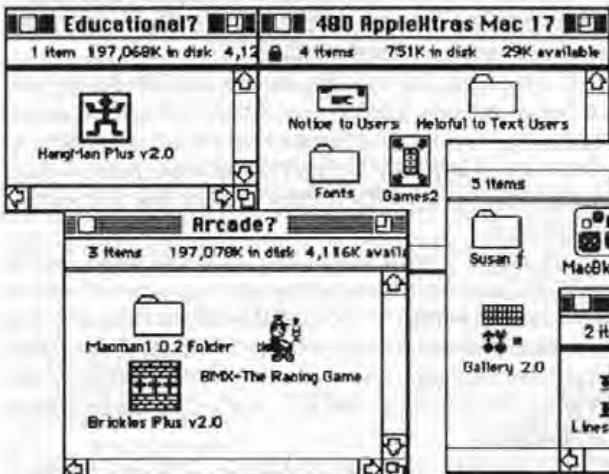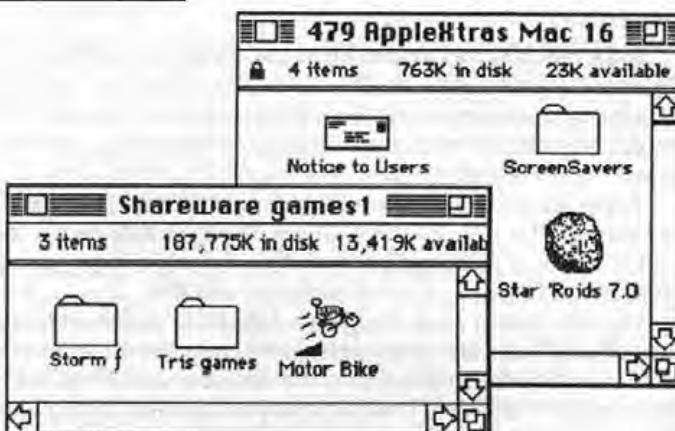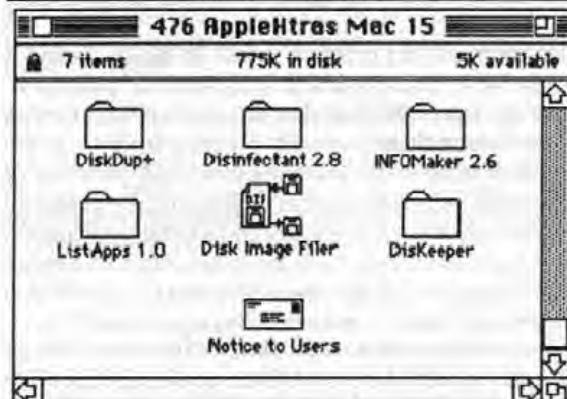
Nonetheless, this is a problem, and one that I hope Apple can work around in as technology catches up to necessity. All is not black, however. Note that I did go ahead and buy the thing, even after experiencing all these problems in the loaner unit. (I also learned, during that first trip, that you should never ship a PowerBook in sleep mode. The hard disk crashes and the only way to revive it is to turn it over and paddle its bottom like it's a misbehaving child.)

Truth is, there is nothing that quite equals the pleasure of having a mostly-no-compromise portable Macintosh that doesn't require a trip to the chiropractor after every business trip. And it has some very cool features I haven't been able to use yet (like Remote Access — I have to switch my desktop Mac to System 7 first), which I'm sure I'll rave about. But if one of the reasons you're buying it is for ergonomic design, spend a few hours working on it before you decide.
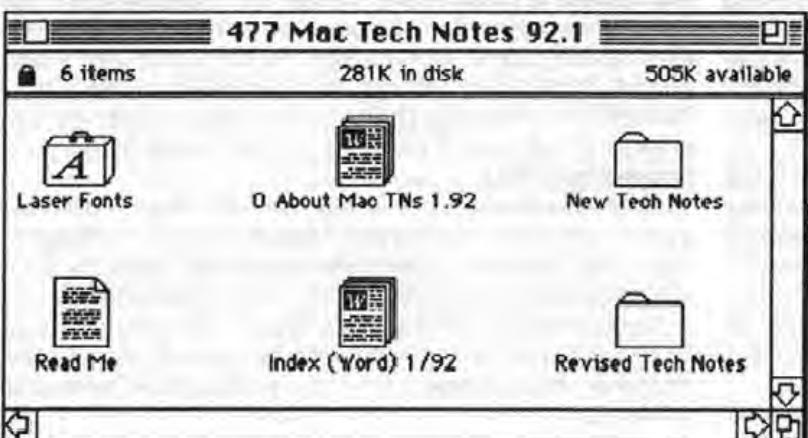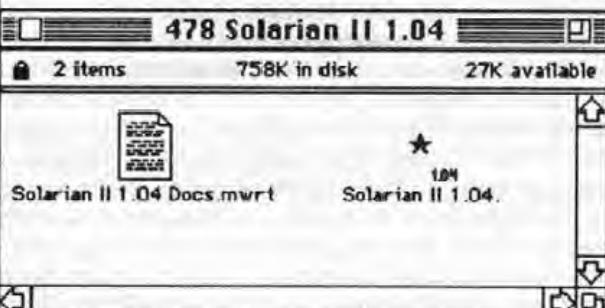
AppleXtras
Mac 15 16 17 18

As we were not sure on the future scale of our operations, Norah prepared four AppleXtras disks for the Mac, for inclusion with this publication.

Although it is now clear that we shall be sending at least one further publication to the members, we felt that we should send these four disks to the Mac AppleXtras subscribers, and also make them available to the general membership through the library.

476 AppleXtras Mac 15 — 7 items — 775K in disk — 5K available
DiskDup+ Disinfectant 2.8 INFOMaker 2.6 ListApps 1.0 Disk Image Filer DisKeeper Notice to Users

479 AppleXtras Mac 16 — 4 items — 763K in disk — 23K available
Notice to Users ScreenSavers Star 'Roids 7.0

Shareware games1 — 3 items — 187,775K in disk — 13,419K availab
Storm ƒ Tris games Motor Bike

Educational7 — 1 item — 197,068K in disk — 4,12
Hangman Plus v2.0

480 AppleXtras Mac 17 — 4 items — 751K in disk — 29K available
Notice to Users Helpful to Text Users Fonts Games2

Arcade7 — 3 items — 197,078K in disk — 4,116K avail
Macman1.0.2 Folder BMX-The Racing Game Brickles Plus v2.0

Strategy — 5 items — 197,057K in disk — 4,137K available
Susan ƒ MacBlocks CTest of Minds Gallery 2.0

Lines of Action — 2 items — 197,057K in disk — 4,137K avail
Lines of Action LOA Read Me (Text)

481 AppleXtras Mac 18 — 7 items — 745K in disk — 34K available
Notice to Users Charts & Graphs Word 4 Envelope Stuff PippiniPuzz Twilight Staque SimpleLabel2.01 Memo Minder

Mac Library

477 Mac Tech Notes 92.1 — 6 items — 281K in disk — 505K available
Laser Fonts 0 About Mac TNs 1.92 New Tech Notes Read Me Index (Word) 1/92 Revised Tech Notes

Disk 477 contains the latest Technical Notes, as published by Apple Computer, Inc.

478 Solarian II 1.04 — 2 items — 758K in disk — 27K available
Solarian II 1.04 Docs.mwrt Solarian II 1.04.

Members' Small Ads

WARNING: The sale of copied or pirated software is illegal.
Please ensure that items offered for sale are new or are re-registered.

FOR SALE

Stylewriter printer. Still on first cartridge £225
Call V. Campbell-Harding.....................................0264 87266

WANTED FOR APPLE 2e

Mouse and Card
RAM Card
ProDOS Tech.ref.Manual
BASIC programming with ProDOS.
'Phone Tom... ▓▓▓▓▓▓▓ (▓▓▓▓)▓▓▓▓▓▓

Surplus Apple II items for sale

Hardware
Apart from where stated complete with original documentation & where applicable software.

Genuine Apple HDSC20 (20 mB Hard Disk) £195
(this or item 2 available)
84 mB Hard Disk (Seag 296N Mech) £295
(this or item 1 available)
Apple ImageWriter II (Colour Printer) £195
(Little used)
AE TimeMaster II HO Clock...£35
AE Transwarp IIe £59
Titan Accelerator IIe (Card only).................................£35
Snapshop Card...£35
Super Serial Card £30
Cirtech PlusRAM 256k £30
Cirtech Printer Card...£20
Apple II EuroPlus £30
Disk Box (40 * 5 1/4) £3
IIGS Mono Monitors...£50

Software
Original documentation & disks.
Apple WorkBench ProDOS Ref/Assm £25
MultiPlan £10
A.P.E (Applesoft Editor) £15
GPLE (Applesoft Editor)..£15
Bag of Tricks (Disk Utilities) £15
G.A.L.E (Applesoft Editor) £15
Copy II Plus (Old Version) £5
APM...£3

Manuals, Books & Documentation
DOS 3.2 Manual £5
DOS 3.3 Manual £5
What's where in the Apple £4
Applesoft Ref Manual £5
80 col Ref Manuals £3
Apple II Ref Manual £5
DOS Users Manual..£6
Apple II Memory Card Users Man £2
ProDOOS Users Manual..£8
Assembler Manual (MicroSparc) £5
VideoTerm Manual £5
Programmers Intro to IIGS £15
Full Set of Windfall/Apple User (7yrs) £45
(includes 5 Binders)
Near full set of Call A.p.p.l.e £50
(+ Nibbles, Aplus & InCiders)

Notes:-
i) Postage extra.
ii) Prices negotiable especially on multiple orders.
iii) Other items available please ask.

Tel: K. J. Dawson .... ▓▓▓ ▓▓▓ ▓▓▓▓

Macintosh IIsi System For Sale

Mac IIsi 17mb RAM 80mb internal hard disk. 100mb external hard disk. F.P.U. 64k Ram Cache. Radius Colour Pivot monitor. System 7.0 and loads of software including Word 5.0, Caris Resolve etc. QMS PS410 - postscript printer.
All items in perfect condition, complete with all packaging and under manufacturers warranty.
For a quick sale only £3,500 inclusive of VAT. Delivery extra if required.

Call Simon ....▓▓▓▓ ▓▓▓▓▓ - ▓▓▓▓ ▓▓▓▓ ▓▓▓▓▓ - evenings

FOR SALE

HARDWARE...£520
Apple IIc with Z-Ram Ultra (1mg)
Apple IIc Monitor stand
Apple Mouse and Manual
Apple 3.5 Unidisk
Apple 5.25 external disk drive
Juki 6100 daisywheel printer with serial interface
Miracle WS4000 Modem
Philips Mono monitor

SOFTWARE...£130
Original disks and manuals. Includes Appleworks, Apple Logo , Mousepaint with Mouseprintz , Time Out (Superfonts, UltraMacros, Thesaurus, Sidespread, Desktools), Time Works Publish It 3 and Graph-It, Visualiser , The Gazelle, and other assorted utilities and games.

BOOKS AND MANUALS £60
Apple II Unidisk Manual, Apple IIc System Utilities, Apple presents the Apple IIc, Applesoft Basic Programmers Reference Manual, Applesoft Tutorial, Appleworks 3 Reference Manual, Appleworks Tutorial, Basic Programming with Prodos, CP/AM 5.1 Users Guide, Extending Appleworks, Z-Ram Ultra Users Manual, CP/M Plus Handbook.

Everything must go !! ....£650 **for the lot**
Offers considered.
Free delivery in London.
Anywhere else, delivery cost added to price.

Ring Garry .... ▓▓▓ ▓▓▓ ▓▓▓▓
(leave message and your number on my answerphone)

Apple Clearance Sale

Apple IIe with twin drives.
10" Apple Mono screen
10Mb Sider hard disk.
Applied Engineering MSDos board
Twin MSDos drives
ProDos, MSDos
BitStic CAD/CAM controller & software
Graphics tablet & software
Snapshot card
Clock card
Z80 card
plus Apple manuals/books etc. too numerous to details. Everything Apple IIe related you can have.

£500 the lot, must be a bargain, need the space.

All excellent condition, would split for sensible offers.

Tel. Roger .... ▓▓▓▓ ▓▓▓▓▓ ▓▓ ▓▓▓▓ ▓▓ ▓▓▓▓

Members' Small Ads

**WARNING: The sale of copied or pirated software is illegal.
Please ensure that items offered for sale are new or are re-registered.**

FOR SALE

Apple II systems:-

System 1
Apple II+ 64K, Two 5.25" Disk drive + controller card, Zenith
Monitor, Videx Videoterm 80 Column Card, Videx Keyboard
Enhancer, 128K Memory Card, Apple Communications Card,
Parallel Printer Card, Centronics 737 Printer

System 2
Apple II+ 48K, One 5.25" Disk Drive + Controller Card, Sanyo
Monitor, Parallel Printer Card, Apple Silentype Printer (Needs
Attention),

SOFTWARE
Robocom 500 Graphics system with Bitstik, Visicalc 3.3, Videx
Visicalc 80 column preboot, Vergecourt Super Expander 80.2
(for Visicalc) D.B. Master, Applewriter II, Applewriter 80
Column Preboot, Apple Fortran, Bag of Tricks, Enhanced
Graphics Software, Plus works (Runs Appleworks on Apple II+),
Vergecourt Super Expander 80.2 (For Visicalc), Bag Of Tricks,
All with Manuals.

Other manuals - Apple II Reference Manual, Applesoft Tuto-
rial, Applesoft Reference Manual, DOS Manual, Apple Plot

Offers for the lot or will split

Phone John .... ████ █████

WANTED
Manuals/software for Apple IIc:
System Utilities Manual
Apple IIc Reference Manual
AppleSoft Reference Manual
Apple Pascal Operating System Reference Manual
Apple Pascal Language Reference Manual
SuperPilot Language Reference Manual
6502 Assembly Language
6502 Editor/Assembler Manual
Synertek Programming Manual
Synertek Hardware Manual
Basic Programming With Prodos
Prodos Technical Reference Manual
Dos User's Kit
a Typing program
Apple Logo package
test programs
program/procedure to align disk drive heads

Contact O. Buznea .... ████ █████

WANTED
AGFA Focus II sheetfeeder

'Phone Ron Allpress (evenings) .... ████ █████

FOR SALE
Two Iomega Bernoulli Box removable cartridge drives. New,
unused and in their original boxes. The units have two slots for
10Meg cartridges. £150
Four cartridges also available.

'Phone Ron Allpress (evenings) .... ████ █████

FOR SALE
Apple II+ with two drives, cards, manuals etc.

Phone: Paul Gibbs after 7.0pm .... ████ █████

FOR SALE
MicroWriter Agenda, with MacPack connection software and
cable for Macintosh The ideal pocket Mac. Hardly used. £125

Call Angus (evenings) .... ████ █████

FOR SALE
Mac LC 4/40 with 512K VRAM upgrade, System 7. Boxed. No
monitor. £1150

'Phone Jonathan .... ████ █████

WANTED
Sierra / Dynamix games for the **Apple Macintosh**

Order of preference: Red Baron
                          Kings Quest V
                          Space Quest IV
                          Police Quest 3   †
                          Conquest of the Longbow
                          Leisure Suit Larry 5
                          others ?

Must be "as new" complete package, 256 colour, for LC.

Also wanted for LC: Dungeon Master (FTL)   †
                         Flight Simulator 4 (Microsoft)
                         Task Force   †

† I don't even know if these are available, but the others are !

Phone Jonathan .... ████ █████ (██████)

Advertisers' Index